

CONTENTS

VOL. XXXIII

TO NEW YORK
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153920 JANUARY, 1924
ASTOR, LENOX AND
TILDEN FOUNDATIONS
1924

No. 1

Annual Show
Number



<i>Ships That Never Go to Sea</i>	25-29
<i>Of Such Things Is Motor Boating Made</i>	30-31
<i>Ionic III</i>	32
<i>Briggs, and the House He Made Out of a Boat</i>	33-35
<i>The Petrel's Nest</i>	36-38
<i>George Codrington</i>	39
<i>Pigs in Pokes</i>	40-42
<i>Radio Through the Binoculars</i>	43-44
<i>Two New Express Cruisers Reach Miami</i>	45
<i>Where the Industry Began</i>	46-48
<i>Forecasting the New Year</i>	49-53
<i>Big Boats With Sturdy Engines</i>	54
<i>Speed Makes the Spray Fly</i>	55
<i>Faster and Faster They Go</i>	56
<i>Evolution of the Surface Propeller</i>	57-58
<i>Polly Lee, a Proud Craft</i>	59
<i>Some Engines at the Show</i>	60-61
<i>Outboard Motors for Work and Play</i>	62-63
<i>A New Small Diesel-Type Oil Engine</i>	64
<i>Nineteen Twenty-Four Marine Engines</i>	65-66
<i>A Fleet of Fine Boats</i>	67
<i>What Quantity Production Implies</i>	68-69
<i>An Enclosed Bridge Cruiser</i>	70
<i>A Snappy Little Craft</i>	70
<i>Harriet, a Day Cruiser</i>	71
<i>They're Off for Miami</i>	71
<i>Many New Boats Give Service</i>	72
<i>White Cap II, a 24-Foot Utility Craft</i>	73
<i>Small Motor Boats, Their Care, Construction, and Equipment</i>	74-77
<i>Prize Question No. 1: Build a Bench for Your Shop</i>	74-75
<i>Prize Question No. 2: How to Tune Up the Boat</i>	76-77
<i>Many Craft Entered for Southern Regattas</i>	78
<i>Twenty Million Dollars Planned for Motor Boats</i>	80
<i>New Things At the Show</i>	150-274

**Motor
Boating**

119 WEST 40th ST. NEW YORK, N. Y.

MoToR BoatinG is published monthly by the International Magazine Company. William Randolph Hearst, president; C. H. Hathaway, vice-president; Ray Long, vice-president; Joseph A. Moore, treasurer; C. E. Fordeick, secretary; 119 West 40th St., New York, N. Y. U. S. A. Single copies, 25 cents. Yearly subscription in the United States and Canada, \$3.00. In foreign countries, \$4.00. When you receive notice that your subscription has expired it is best to renew it at once, using the blank enclosed. When changing an address, give the old address as well as the new and allow five weeks for the first copy to reach you. Copyright, 1923. International Magazine Company. MoToR BoatinG is fully protected by copyright and nothing that appears in it may be reprinted either wholly or in part without permission.

MASTERPIECES



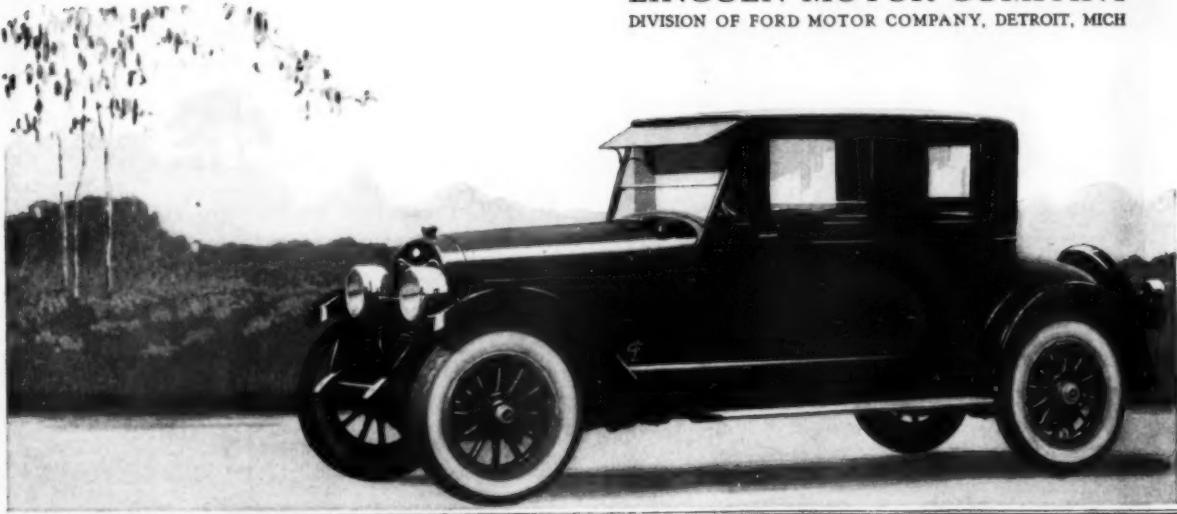
The Arc de Triomphe rising 162 feet at the head of the Champs Elysées, Paris; begun by Napoleon in 1806; one of the architectural masterpieces of the world.

Striving to satisfy completely some deep-felt need of his fellow men, the architect has occasionally wedded beauty of line so intimately to useful function that his work stands a masterpiece of the builder's art.

These architectural achievements find their automotive counterpart in the Lincoln. In a comprehensive and fundamental way, this is a useful car. It dispatches every function of the automobile with a brilliance gratifying to the most exacting motorist.

And its beauty is so notable that it becomes, in reality, a factor in utility. The inseparable blending of the two makes the Lincoln an authentic masterpiece.

LINCOLN MOTOR COMPANY
DIVISION OF FORD MOTOR COMPANY, DETROIT, MICH



LINCOLN

Advertising Index will be found on page 276

19th ANNUAL NATIONAL
MOTOR BOAT SHOW

GRAND CENTRAL PALACE - NEW YORK

JANUARY 4th to 12th 1924



NEW YORK

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MOTOR BOATING

earnestly suggests to boatmen everywhere that they make a special effort to visit the Motor Boat Show of 1924. It's going to be a great Show—the biggest ever—with more boats, more engines, more interest than any Show of the past.

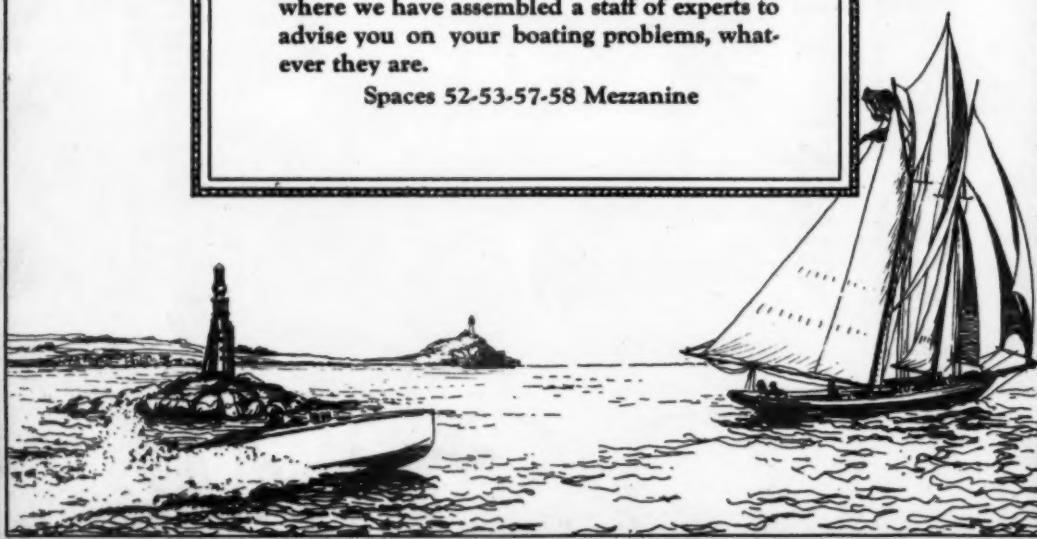
**GRAND CENTRAL PALACE
NEW YORK**

January fourth to twelfth

Come to New York and see for yourself the many new things the boat builders and marine manufacturers have prepared for you. Nowhere else can you see and compare the various products that have made boating the supreme sport it is today.

And while you are here we cordially invite you to stop at the MoToR BoatinG exhibit, where we have assembled a staff of experts to advise you on your boating problems, whatever they are.

Spaces 52-53-57-58 Mezzanine





When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 110 West 40th Street, New York



Whether you buy or sell marine motors, the value you get depends on price, performance and production ~ ~

THREE'S satisfaction in feeling you've got a motor that will do everything the other fellow's will when it cost you considerably less.

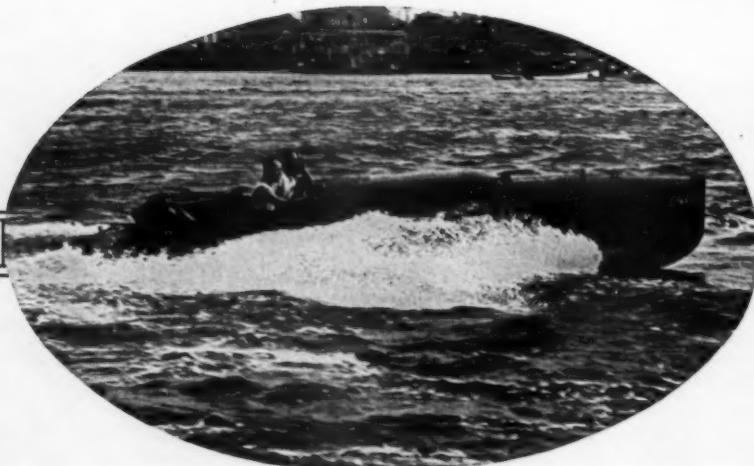
There's pride in feeling you've got a motor that lives up to all you expected of it.

There's confidence in feeling you've got a motor that will bring you to shore no matter what the weather conditions may be.

Power your boat with a "White Cap" and you'll get this satisfaction, pride and confidence.

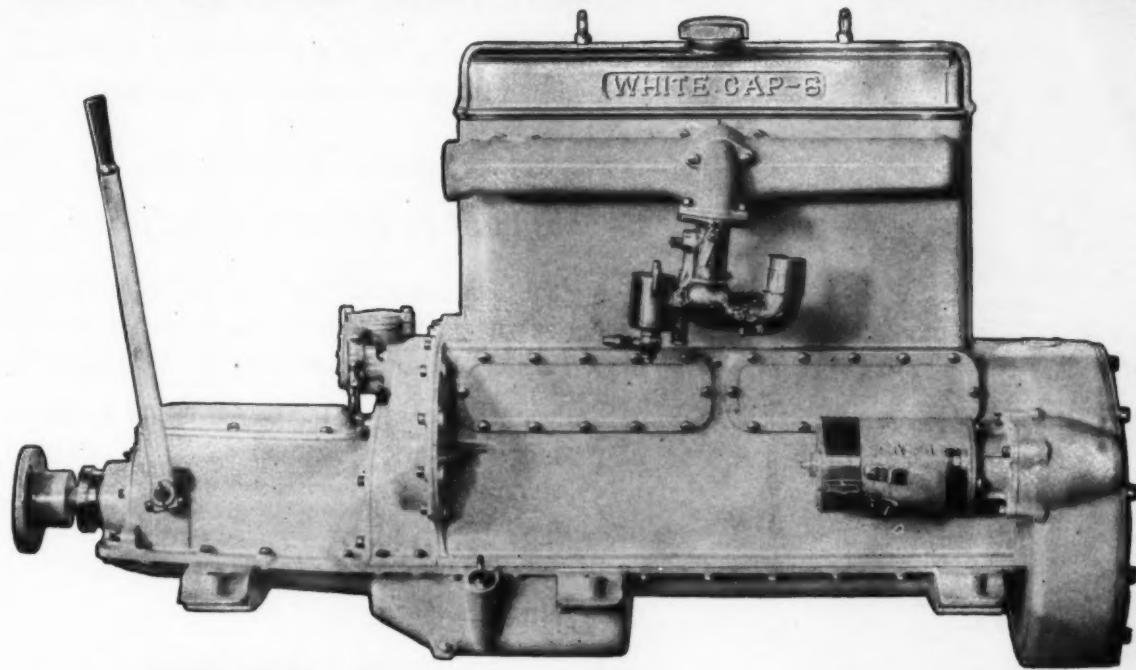
Wisconsin White Caps are produced in quantity

When you buy a "White Cap," you are getting a quality motor built on a production basis.



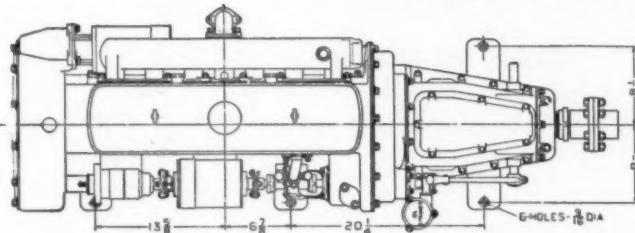
Advertising Index will be found on page 276

WISCONSIN



White Cap "6"

S P E C I F I C A T I O N S



Bore, 3 1/8 in. Stroke, 5 in. Number of cylinders, 6.
Piston displacement, 268.3 cubic inches.

Horse Power, 32 at 1000 RPM

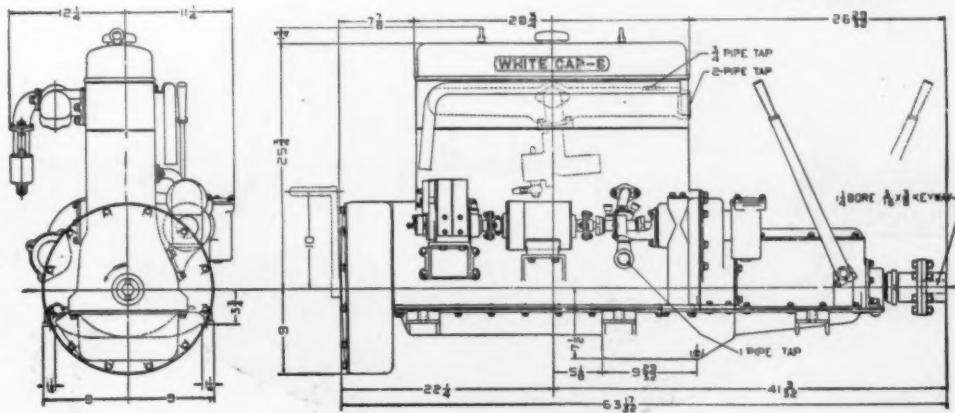
43 at 1400 RPM

53 at 1800 RPM

60 at 2050 RPM

Paragon reverse gear. Bosch high tension magneto with impulse coupling. Leese-Neville 12-volt electric starter and generator. Propeller shaft coupling for 1 1/4-inch shaft. Bronze water circulating pump, gear type. Waterproof spark plugs. Stromberg carburetor. Wiring. Oil pressure gauge. This motor is provided with thermostatic water temperature control.

Price, \$995.00



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 119 West 40th Street, New York

The photograph on the back of this insert gives you an idea of how our factory is equipped to turn out "White Caps" in quantity.

Any article built on a production basis will always be of higher quality at lower cost.



*Wisconsin White Caps
are built to last and to perform*

They last because nothing but the best of material goes into them—material selected for its proved ability to stand hard use for long periods.

They perform because they are the product of practical marine engineering skill, coupled to expert mechanics working with the finest machines.

They develop ample horsepower for any emergency they are called on to face.

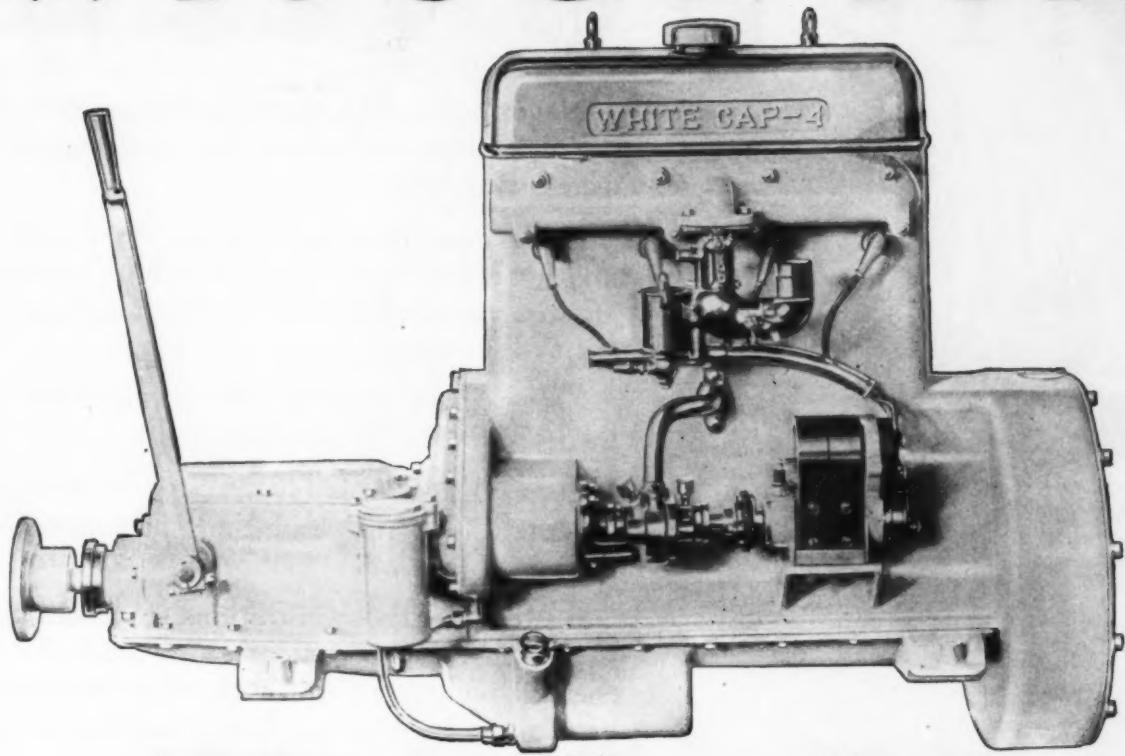
They are economical in operation. They are accessible. They are backed by a service department always supplied with a full stock of parts and constantly bearing in mind that promptness is the first requisite of satisfactory service.

*Wisconsin White Caps
have set new price Standards*

When "White Caps" came out at the New



WISCONSIN



White Cap "4"

SPECIFICATIONS

Bore, 4 in. Stroke, 5 in. Number of cylinders, 4.

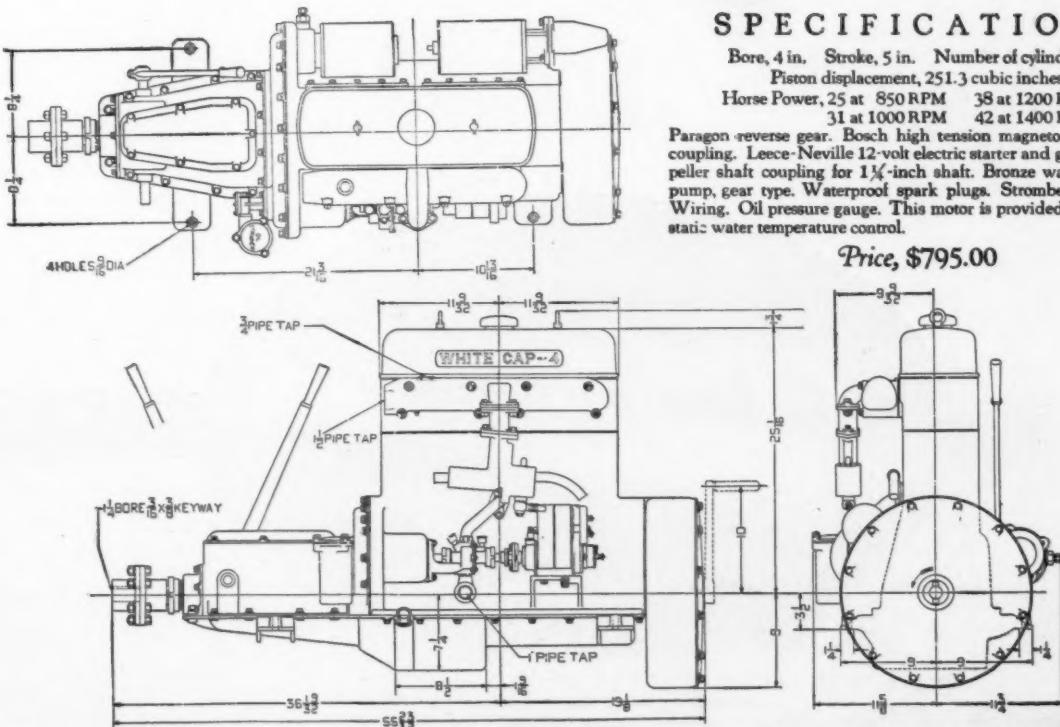
Piston displacement, 251.3 cubic inches.

Horse Power, 25 at 850 RPM 38 at 1200 RPM

31 at 1000 RPM 42 at 1400 RPM

Paragon reverse gear. Bosch high tension magneto with impulse coupling. Leece-Neville 12-volt electric starter and generator. Propeller shaft coupling for $1\frac{1}{4}$ -inch shaft. Bronze water circulating pump, gear type. Waterproof spark plugs. Stromberg carburetor. Wiring. Oil pressure gauge. This motor is provided with thermostatic water temperature control.

Price, \$795.00



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 129 West 40th Street, New York



York Motorboat Show in January, 1923, they were the most talked-of motors on exhibition.

This was because they set new price and quality standards.

Never before had anything been offered to the motorboat enthusiast that even approximated their value.

Dealers and boat builders saw the opportunity for volume sales that the new Wisconsin models presented and bid for the franchises to sell "White Caps."

Boat owners who checked up values, placed their orders for "White Caps."

Today the condition is the same. Wisconsin "White Caps" still lead the field—a better marine motor for less money.

Read over the specifications. Pick out the motor that meets your requirements. Then check it point for point with other motors in its class, and we are confident that your order will be placed for a "White Cap."

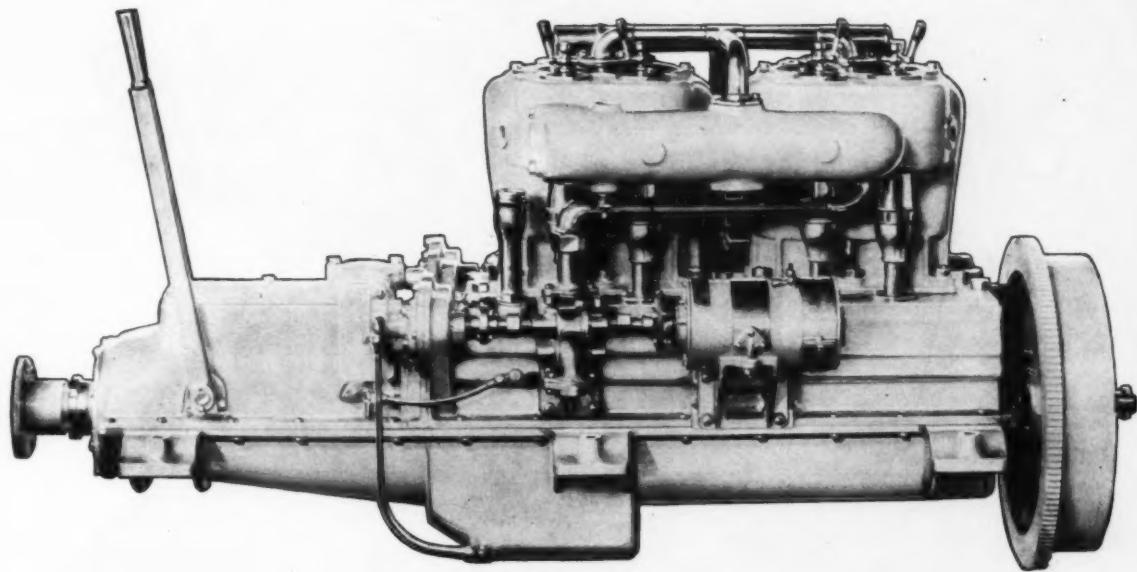
WISCONSIN MOTOR MFG. CO.
Milwaukee, Wis.

(See next page)



Advertising Index will be found on page 278

WISCONSIN



Model "A-M"

S P E C I F I C A T I O N S

Bore, $4\frac{1}{4}$ in. Stroke, $5\frac{1}{2}$ in. Number of cylinders, 4.

Piston displacement, 390 cubic inches.

Horse Power, 32 at 800 RPM

40 at 1000 RPM

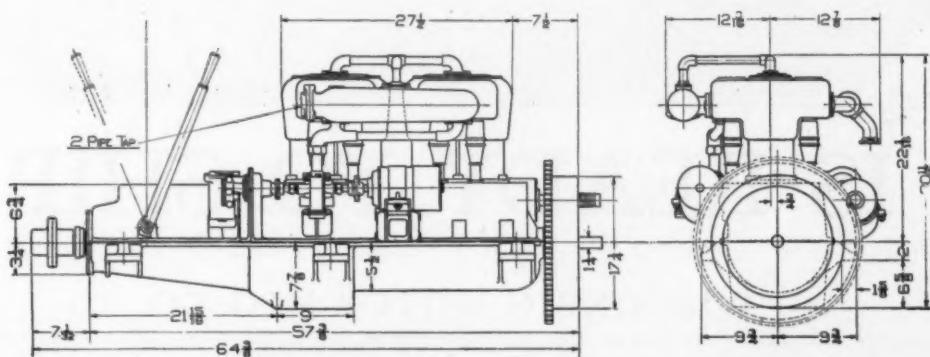
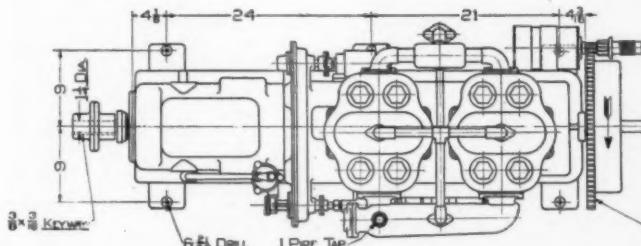
48 at 1200 RPM

54 at 1400 RPM

Paragon reverse gear. Bosch high tension magneto with impulse coupling. Leice-Neville 12-volt electric starter and generator. Propeller shaft coupling for $1\frac{1}{4}$ inch shaft. Bronze water circulating pump, gear type. Waterproof spark plugs. Stromberg carburetor. Wiring. Oil pressure gauge.

Price, \$1050.00

GEAR RATIO 8:10 Pitch 154 Teeth 12 1/2 P.D.



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This Is the Reason
Why Your

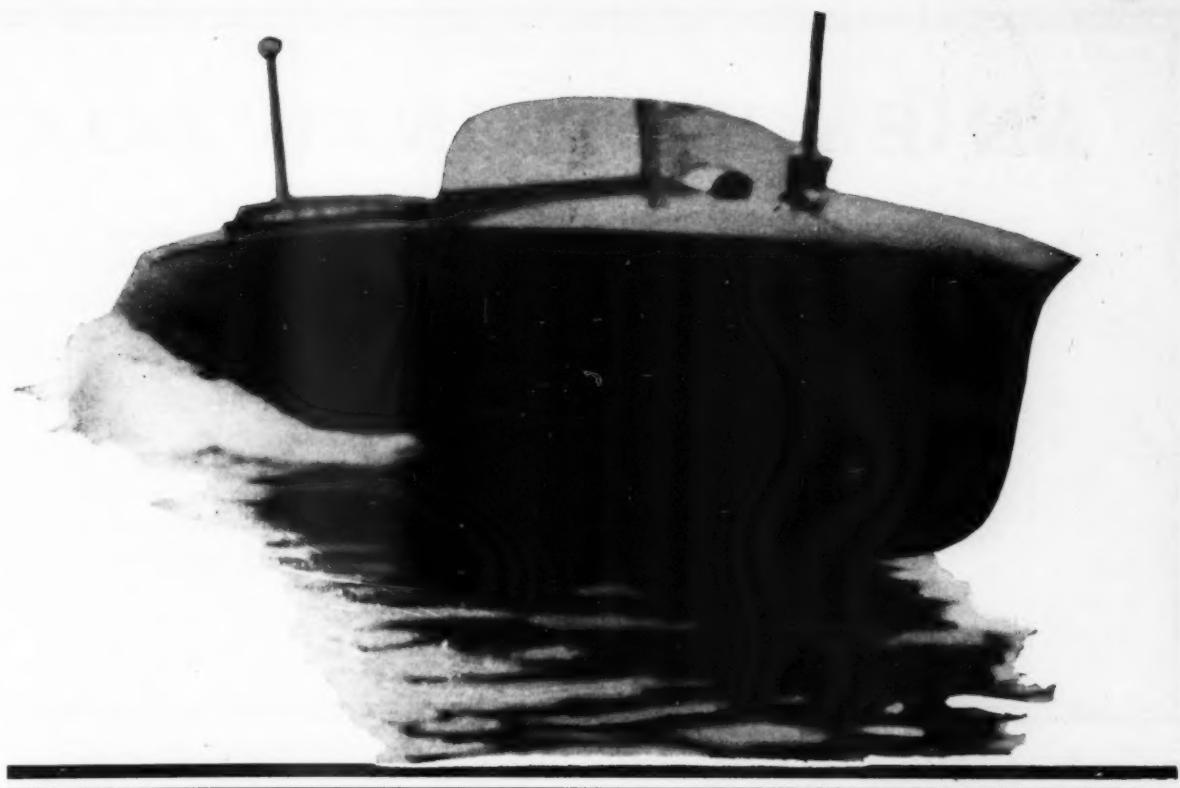
Wisconsin
CONSISTENT
White Cap



IS READY TO SHIP

WISCONSIN MOTOR MFG. CO.
Milwaukee, Wis.

Advertising Index will be found on page 276



**THE HORACE E. DODGE BOAT WORKS
ANNOUNCES
THE DODGE WATERCAR**

a 22-foot speed boat equipped with Dodge Brothers Marine Engine. Inquiries regarding the boat may be directed to the manufacturer at 2670 E. Atwater St., Detroit, or to Dodge Brothers' Dealers.

AN EXCEPTIONAL BOAT A

The Dodge Watercar is constructed throughout with the same jealous regard for quality that always characterized the works of the late Horace E. Dodge, the builder's father.

Lines and equipment suggest beauty and comfort in every detail.

Above and below the water line, the hull is of the finest Honduras mahogany, with keel and chines of selected white oak.

The size of the boat—22 ft. 6 in. over all, with 5 ft. 6 in. beam—affords generous accommodations for five persons, with ample room for two others if desired. The equipment includes one comfortable lounge for three and two beautiful Pullman chairs.



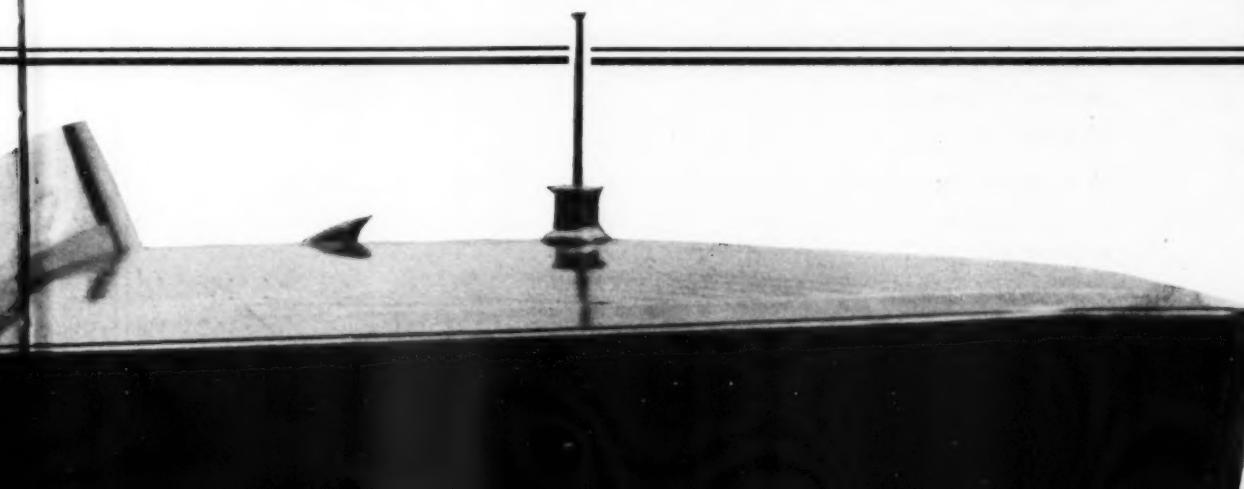
AT A MODERATE PRICE

The use of Dodge Brothers Marine Engine constitutes a virtual guarantee of unusual power and dependable, low-cost service.

The guaranteed speed of The Watercar is 20 miles per hour.

The Watercar will be on exhibition at the New York Motor Boat Show and in Hotel Pennsylvania during the New York Automobile Show. Any Dodge Brothers Dealer will gladly supply further information as to prices, equipment and delivery dates.

HORACE E. DODGE BOAT WORKS
2670 E. Atwater Street - - - - Detroit, Michigan

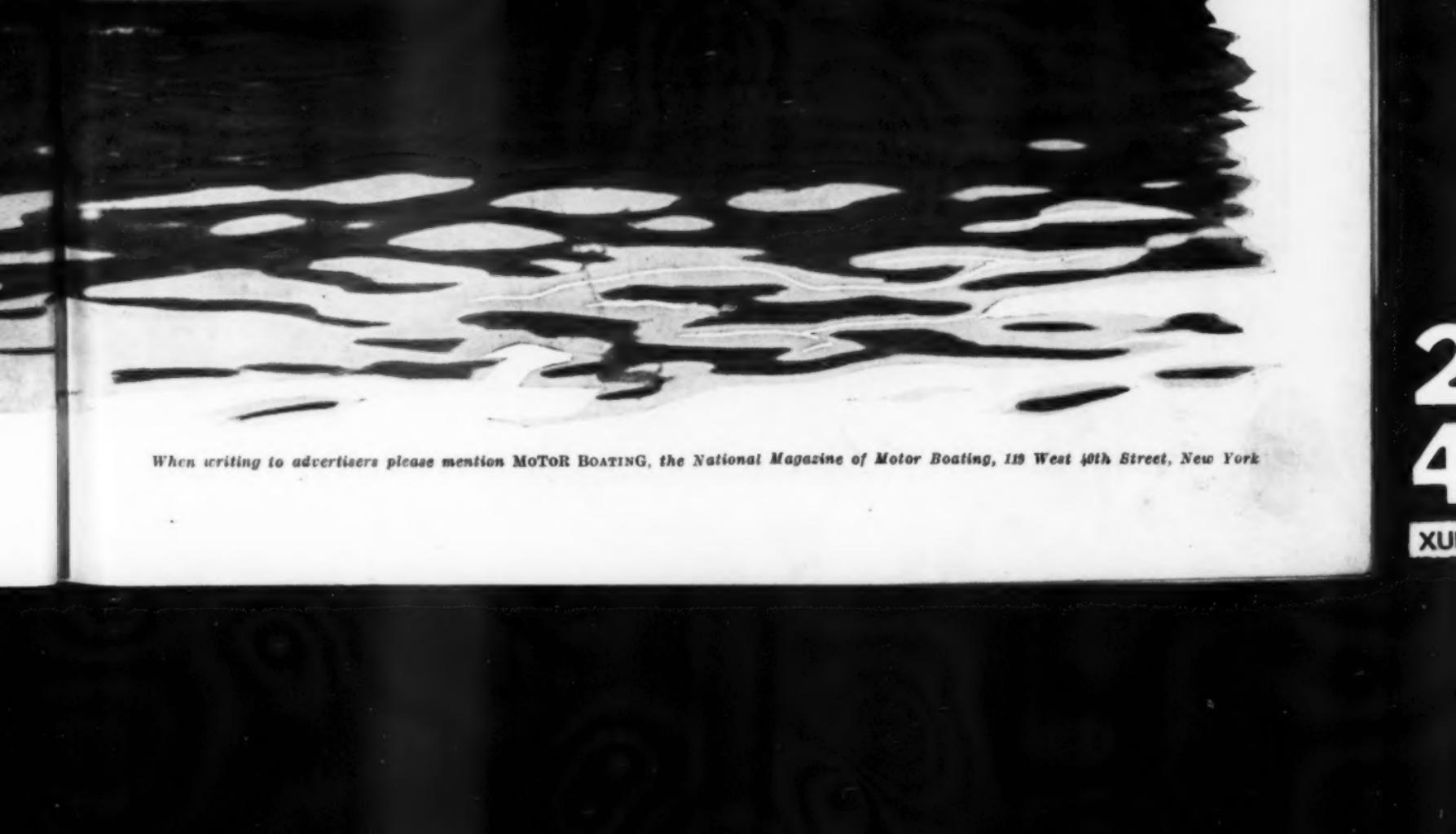


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Advertising Index will be found on page 276



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A NEW ACHIEVEMENT IN BOAT BUILDING

The fact that Dodge Brothers have authorized their vast dealer organization to co-operate in the marketing of the Dodge Watercar enables us to begin production of this standard runabout on an immediate, large-scale basis.

In fact, the first year's plans call for a larger output than ever before attained by any boat builder.

This is naturally reflected in the price and quality of the boat. We now offer it to the public with the sincere conviction that it is a better boat than can be obtained anywhere at a comparable figure.

Not only is the Dodge Brothers Marine engine standard equipment, but many other standard Dodge Brothers parts and accessories are employed. The fact that these parts can always be obtained on a moment's notice from any Dodge Brothers Dealer is of inestimable value to the boat owner. It eliminates the necessity of awaiting parts shipments from distant factories and assures the owner of competent service.

A complete description of The Watercar, with graphic illustrations, is contained in our new catalog. Write us for a copy—or place your request with the local Dodge Brothers Dealer.

HORACE E. DODGE BOAT WORKS

2670 E. Atwater Street - - - - - Detroit, Michigan



Advertising Index will be found on page 276

"The World's Standard Transmission"



Gold Medal
of the
Brazilian
Centennial
Exposition
Awarded to

PARAGON REVERSE GEARS

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WORLD'S STANDARD

PARAGON has been a success for sixteen years, and is today considered the world's standard transmission, because it was originally designed right and has been built right ever since. The original principles are still in use, and the only changes which have been made have been refinements in detail.

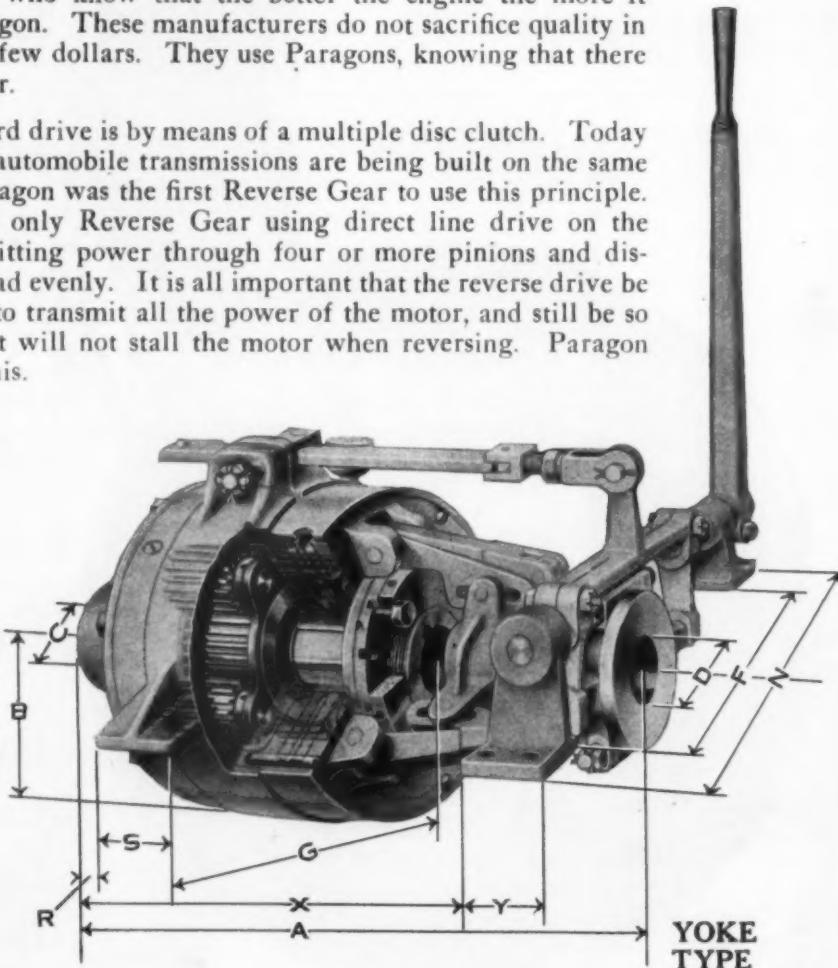
All the world over Paragon Gears have been subjected to all kinds of use, overload, and abuse, and the original Gears built back in 1907 are giving daily and satisfactory service.

Paragon is the preferred Reverse Gear of forty great engine manufacturers, who know that the better the engine the more it deserves a Paragon. These manufacturers do not sacrifice quality in order to save a few dollars. They use Paragons, knowing that there is nothing better.

The forward drive is by means of a multiple disc clutch. Today practically all automobile transmissions are being built on the same principle. Paragon was the first Reverse Gear to use this principle. Paragon is the only Reverse Gear using direct line drive on the reverse, transmitting power through four or more pinions and distributing the load evenly. It is all important that the reverse drive be strong enough to transmit all the power of the motor, and still be so designed that it will not stall the motor when reversing. Paragon accomplishes this.

ENGINE MANUFACTURERS USING PARAGON REVERSE GEARS

Arcadia Gas Engine, Ltd.
Anderson Engine Co.
Automatic Machine Co.
Barker Factory
Bridgeport Motor Co.
Canadian Fairbanks-Morse Co.
Chesapeake Engine Co.
Cummins Engine Co.
Erd Motor Co.
Fay & Bowen Engine Co.
Frisbie Motor Co.
Gaeth Motor Co.
J. S. Gaffga & Co.
Gray Marine Motor Co.
Hall-Scott Motor Car Co.
Hettinger Engine Co.
Hinckley Motors, Inc.
Huise Bros.
International Mfg. Co.
Knox Motor Co.
Kermath Mfg. Co.
J. W. Lathrop & Co.
Mecco Engine Co.
Mianus Motor Works, Inc.
Missouri Engine Co.
New London Ship & Engine Co.
N. & S. Engine Co.
Packard Motor Car Co.
Pierce Boutin Motors, Inc.
Red Wing Motor Co.
Regal Gasoline Engine Co.
Roberts Motors
Straubel Machine Co.
Scripps Motor Co.
B. F. Sturtevant Co.
Treiber Products Co.
Universal Products Co.
Winton Engine Works
Wisconsin Motor Mfg. Co.
Wright Machine Co.



Yoke Type Paragon Gear for Engine Manufacturers and for Installation on Motors Having Extended Bases. The engine end is bored to fit the crankshaft of the motor, and the propeller is bored to fit the propeller stub shaft. Send for Paragon Booklet giving dimensions.

PARAGON

Advertising Index will be found on page 276

TRANSMISSION

THIS latest bulletin shows three different types of Paragon Gears: the Yoke Type for engine manufacturers and for replacement of Reverse Gears which are giving unsatisfactory service with motors that have extended bases; the Unit Type for use with individual motors; and the Enclosed Type for the man who wishes to pay a little more and wants the last word in Reverse Gear construction. All three of these types are of the same grade of workmanship and of the high standard in which Paragon excels, and all will do exactly the same work.

We also build a line of Reverse Gears for high speed and extra heavy duty motors. Information will be furnished on request.

SIZE OF REVERSE GEAR TO USE

It is false economy to buy a Reverse Gear too small to transmit the power developed by a motor. We stand back of any recommendation we make. If you do not know the exact size of Reverse Gear for your motor, give us the following specifications and we will tell you the right size:

1. Make of motor.
2. Number of cylinders.
3. Two or four cycle.
4. Bore and stroke.
5. Rated horse power.
6. Revolutions per minute
7. Type of boat.

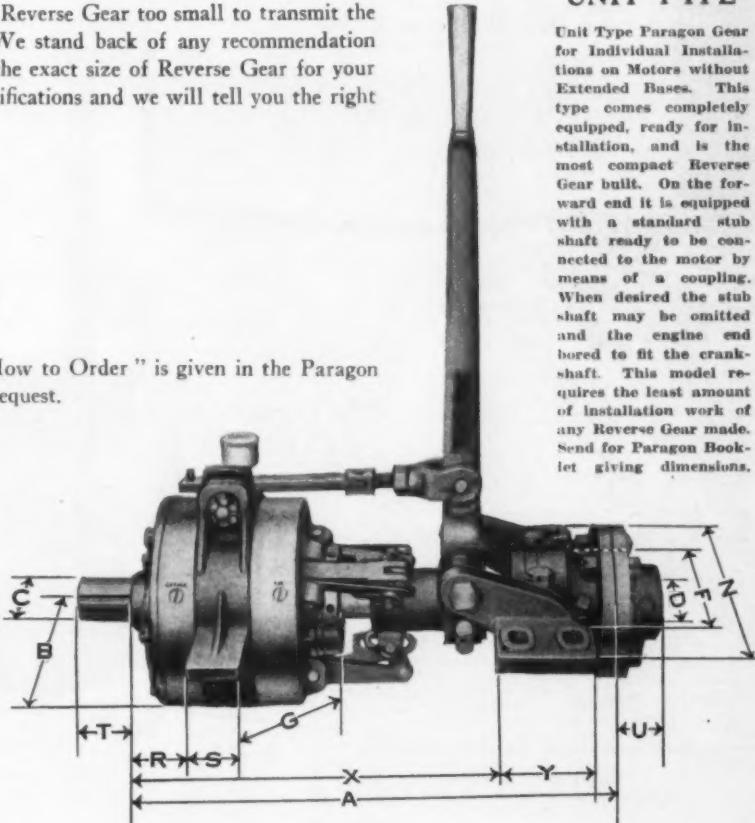
Further information on "How to Order" is given in the Paragon Booklet, which will be sent on request.

PRICES

Model	H.P. per 100 R.P.M.	Yoke Type	Unit Type	Enclosed Type
O	1	\$40.00	\$50.00	\$70.00
Os	1 1/2	45.00	55.00	75.00
As	2	61.00	72.00	96.00
Bs	4 1/2	78.00	90.00	118.00
Bax	5 1/2	90.00	102.00	130.00
Cs	7	115.00		
Ds	9	160.00		
E	15	260.00		
F	25	395.00		

UNIT TYPE

Unit Type Paragon Gear for Individual Installations on Motors without Extended Bases. This type comes completely equipped, ready for installation, and is the most compact Reverse Gear built. On the forward end it is equipped with a standard stub shaft ready to be connected to the motor by means of a coupling. When desired the stub shaft may be omitted and the engine end bored to fit the crank-shaft. This model requires the least amount of installation work of any Reverse Gear made. Send for Paragon Booklet giving dimensions.



REVERSE GEARS

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Simplicity

The Paragon Reverse Gear is the simplest reverse gear on the market to assemble and adjust. There are only two adjustments—one for the forward drive which is accomplished by turning the adjustment collar to the right the necessary number of notches, and one for the reverse drive which is accomplished by just tightening up the nut at the top of the brake band. Paragons run for years without the necessity of being taken apart.

Remember you can always buy spare parts for Paragons all over the world. All Paragons are made in quantity by automatic machinery and to accurate dimensions. All parts are interchangeable and can be obtained at any time and with the assurance that they will fit.

PARAGON GEAR WORKS

100 Cushman Street, Taunton, Mass.

ENCLOSED TYPE

Enclosed Type Paragon Gear for Individual Installations on Motors without Extended Bases. This type is completely enclosed; equipped with the necessary thrust bearings; and it is the last word in reverse gear equipment. The Gear itself runs in a bath of oil and is self-lubricating; it is of the regular Paragon high standard workmanship; comes equipped with couplings on the forward and after ends, and these couplings will be bored and keyed to fit the shaft sizes without extra charge.



PARAGON REVERSE GEARS

Advertising Index will be found on page 276



Fire on a motor boat or cruiser is particularly deadly and dangerous—it breaks forth without warning—and its licking red tongue means disaster and sometimes death.

You must have quick, dependable and effective protection—within arms reach!

The Super Fyr-Fyter

gives you this kind of protection—ready for instant use by a turn of the handle to right or left—shooting a steady, continuous stream 20 to 30 feet—a stream that will quickly snuff out even gasoline or oil fires, but will not injure upholstering, wood-work, wiring or motors.

The *only* Extinguisher that uses "Monel" non-corrode valves—and the *only* Extinguisher you can operate with one hand (doubly valuable when you are fighting a fire in cramped quarters where continuous pumping might be impossible).

Thousands of these dependable Extinguishers protect Uncle Sam's Navy and Airplanes—already in use as standard equipment on many of the best built motor boats—and by hundreds of individual owners.

Find out about them—you need this REAL kind of protection on your boat—fill out and mail the coupon right now—BEFORE fire pays you a disastrous visit!

THE FYR-FYTER COMPANY
2575 Fyr-Fyter Bldg., Dayton, Ohio, U. S. A.

World's Largest Manufacturers of 1 and 1½ Quart Fire Extinguishers

"P. S. YOU CANNOT ALWAYS WALK ASHORE"

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APPROVED

Super Fyr-Fyter Extinguishers are Approved by, and carry the Inspection Label of the Underwriters' Laboratories Inc. Also Approved by the U. S. Dept. of Commerce Steamboat Inspection Service.

We Need a Few More Sales Representatives and have some choice territories open for the right kind of men. Send the coupon for details of the Plan which has doubled the earning power of a good many ambitious men. Send for the Plan TODAY.

THE FYR-FYTER COMPANY
2575 Fyr-Fyter Bldg., Dayton, Ohio

Gentlemen:

Please send, without any obligation to me, your booklet on "Motor Boat Fires."

I am interested as a

Manufacturer,
 Individual Owner,
 Sales Representative.

Name

Address

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Better Service in Marine Engines from *Dependable* Champions

Dependable Champion spark plugs render a better service because Champion is the better spark plug.

It is better because of its wonderful core of sillimanite which always retains its insulating properties, making certain that a full, intense spark is delivered to the firing points.

No matter how extreme the engine stress, either in racing or cruising, Champions make better performance certain. They increase power and speed. They actually save in oil and gas consumption.

You will find it real economy to install a new set of Champions when you overhaul. There is a Champion particularly designed for every make of marine engine. More than 90,000 dealers sell Champions.

Champion Spark Plug Company, Toledo, Ohio
Champion Spark Plug Company of Canada, Limited, Windsor, Ont.

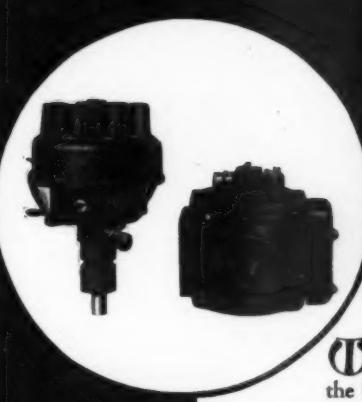


CHAMPION

Dependable for Every Engine

Advertising Index will be found on page 276

NORTH EAST



WHERE DEPENDABILITY COUNTS

WITHOUT an absolute sense of security in the performance of his engine, no motor boat owner can get out of his craft the full enjoyment that is his due.

So the builder cannot consider his engine complete without making certain of the dependability of every unit of equipment on it. This is especially true of the electrical equipment because perfect engine performance demands the highest effectiveness in the ignition and starting and generating system.

This is why North East Ignition, Starting and Generating Equipment, with its long record of dependability both on motor boats and on automobiles, motor buses, taxicabs, trucks and tractors, is found on marine engines where dependability counts.

NORTH EAST ELECTRIC CO.

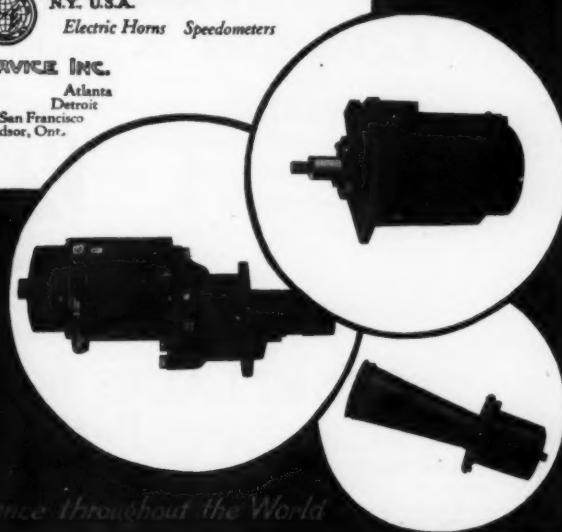
ROCHESTER N.Y. U.S.A.

Starting Lighting Ignition Electric Horns Speedometers

NORTH EAST SERVICE INC.

Rochester London Atlanta
Chicago Paris Detroit
Kansas City San Francisco
New York Windsor, Ont.

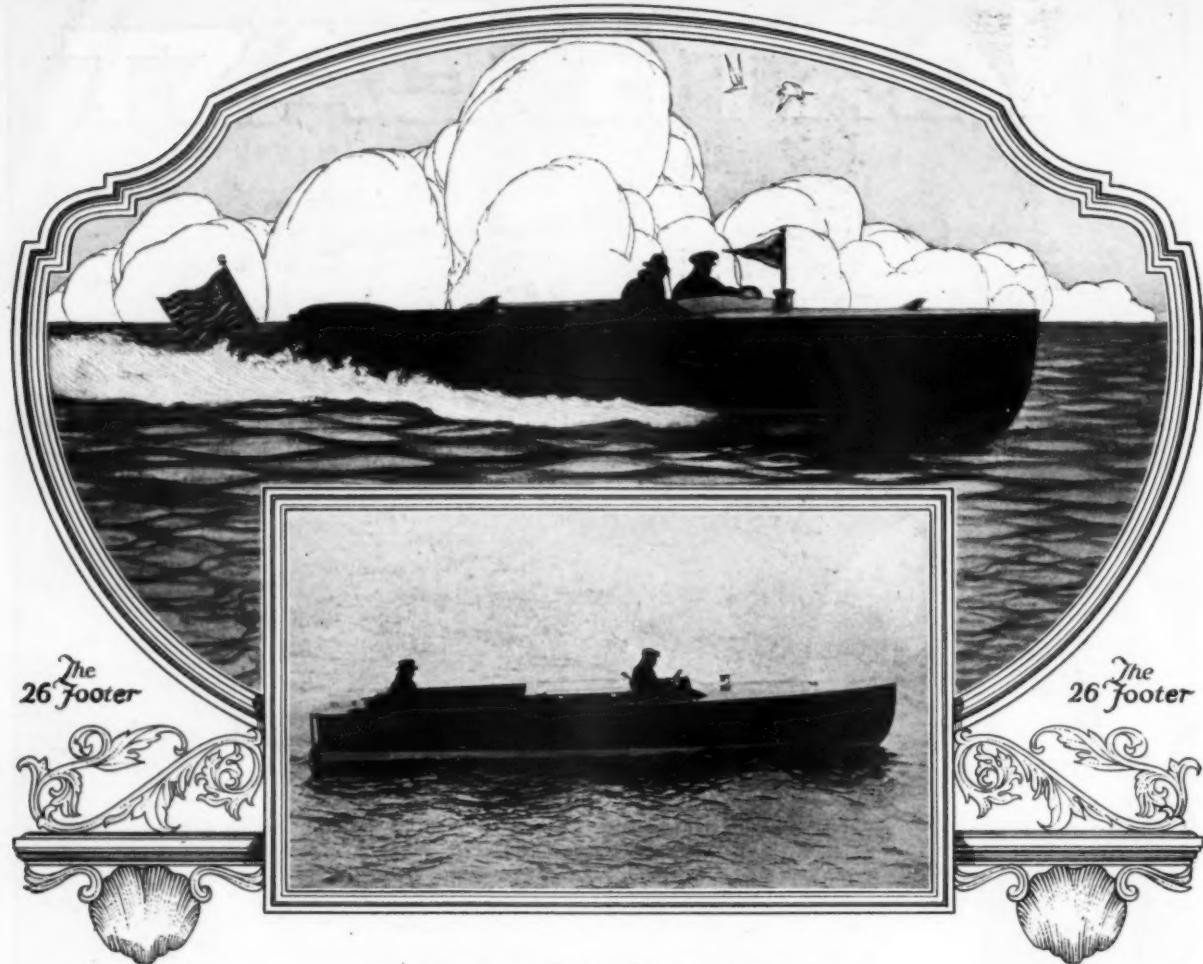
Service Directory Available upon Request



Service Stations in Cities of Importance throughout the World

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XUM



A SENSATIONAL NEW
GREAT LAKES
 26-Foot All-Mahogany Runabout
LOWEST IN OPERATION AND FIRST COST

STABILITY

Dry—seaworthy—handles like your car. Sturdy—comfortable—the elegant family runabout.

\$
2750
 \$

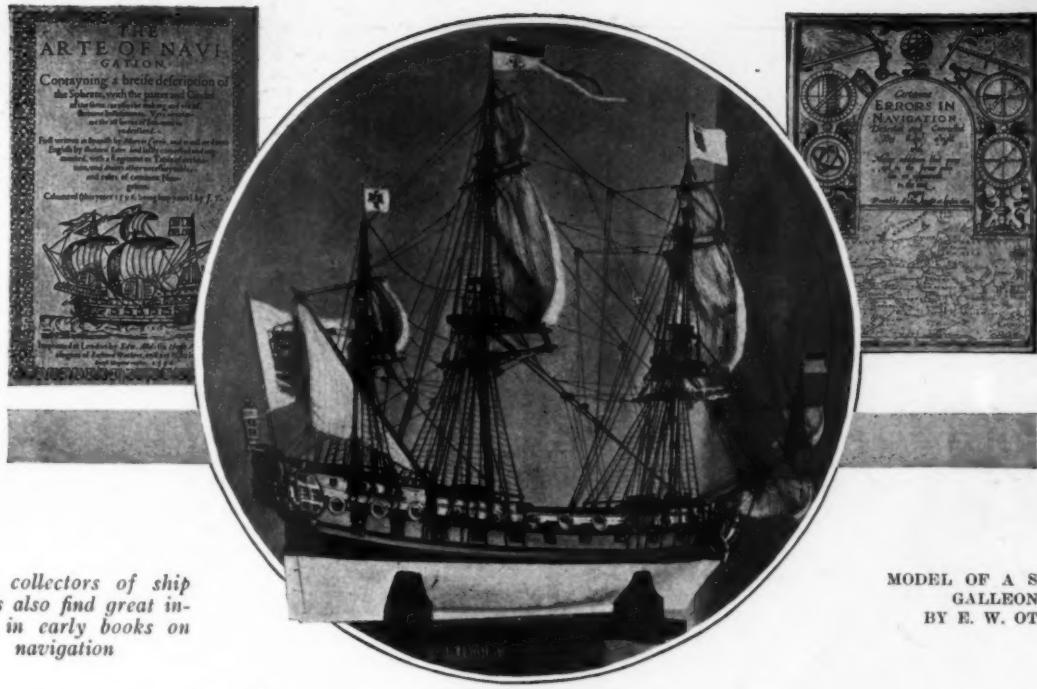
SPEED

More speed for less power due to scientific hull design. Speed—but not at the sacrifice of economy.

Place your order now—there is no time to lose for SPRING DELIVERY.
 Write at once—the first inquiries receive the preference.

GREAT LAKES BOAT BUILDING CORP.
 Dept. H, Milwaukee, Wisconsin

Great Lakes will exhibit this Runabout as well as its 54-foot Express Cruiser at the Motor Boat Show



Many collectors of ship models also find great interest in early books on navigation

MODEL OF A SPANISH GALLEON,
BY E. W. OTTIE

SHIPS *That Never Go To Sea*

PICTORIAL records of ships go back to Egyptian times 3,000 years before Christ, and museums now show us actual models of the Nile river craft that date almost as far back as the paintings. Affection and admiration for the vessel he constructs are inseparable traits of the shipbuilder; and these feelings are reflected in the fact that wherever water craft are built there are always models of them to be found. The people of the great maritime nations have always treasured models of their ships. And in Europe, in particular, they have preserved these models, sometimes as votive offerings in churches, sometimes in local museums, and again in such great national collections as that of the Marine Museum in the Louvre and that of the British Admiralty. Holland used models of ships as wind-vanes on churches and state houses. A golden replica of one of these nautical wind-vanes is a striking note on the handsome office building of the Delaware and Hudson Railroad in Albany, N. Y., which is a perfect reproduction of old Dutch architecture. From the earliest days, American shipbuilders kept alive this tradition of making and preserving ship models, with the result that we have the fine collections of the Peabody Museum, of Salem, Mass.; the unique Bourne whaling museum in New Bedford; those of the New York Yacht Club and India House in New York City; and the United States Government collection at the Naval Academy at Annapolis.

Oldest of these collections of models is that of the Peabody Museum of Salem, Mass., the origin of which goes back to the founding of the Salem East India Marine Society with its museum in 1799. In those days objects connected with the life of the sailor were on every hand and were considered too common to put in a museum, but during the first fifty years of its existence many ship models were presented to the institution together with pictures of ships and related objects and portraits of Salem merchants connected with the shipping trade. In 1889 all these objects

Historic Craft Have Been Turned Into Pleasure Boats For The Joy of The Connoisseur and Collector . by

WM. B. MCCORMICK

were brought together in the Marine Room of the Peabody Museum to which the possessions of the older society had been transferred in 1867. This collection includes one case containing miniature models made of wood, bone and glass between the years 1779 and 1904; a five-feet long model of the U. S. Frigate Constitution, made before 1813 when it was given to the society by Captain Isaac Hull—one of the most highly prized

models in America since it is the only accurate contemporary model of the frigate known; a full-rigged model of the U. S. Ohio, a ship-of-the-line built in 1820; a model of the pinkie—a type of coasting vessels now obsolete; a Salem brig of 1814; another of the ship Friendship of Salem, dating from 1803; one of the bark La Grange that sailed for California in 1849; a Block Island boat model; a model dating from before 1800 of the brig Rising States; a contemporary model of the New Bedford whaling bark Sea Fox of 1874; and a contemporary model of an American clipper ship with sails carved from wood. This collection specifically answers a question that is often asked as to the usefulness of collecting models. When the Navy Department wished to restore the famous frigate Constitution, at Boston in 1907, the department had to go to the Hull model in the Peabody Museum for the exact details to be followed out in the restoration of the ship. The Bourne Whaling Museum at New Bedford, Mass., is another striking illustration of the historical merit lying behind this revival of interest in ship models.

Amateur collections of ship models in our country, however, are comparatively new things. It is about thirty years since the formation of the first one was begun by Irving R. Wiles, portrait and marine painter. And for nearly a score of years, he and the late Alexander W. Drake, were the solitary representatives of the patient art of collecting ship models in the United States. The approaches to collecting of these two men represent the qualities that made a collector of ship models. To Mr. Drake, who was extremely sensitive to all forms of beauty, ship models were



Model of an English East Indiaman, 1800, by E. W. Ottie

things to acquire for their grace of line and general picturesqueness. To Mr. Wiles the love of a ship model sprang from his love for the sea and his knowledge of ships. And, unlike his earliest colleague in this pastime, the artist was the first of our collectors to build a model of his own—this being nowadays considered almost as much a part of the amateur collecting of models as is the picking up of some choice and interesting historical example.

To anyone who pursues this subject ever so little he will soon find that the best models from the technical viewpoint are the least picturesque. These are the so-called block models which are half sections of a ship or yacht made to scale; they preserve the exact form of the vessel, a record that is considered invaluable to the collector, but which is a recondite matter to the beginner. Of the type model most sought after—an actual hull with all its rigging and ship's fittings in place—the finest ones known are

in the Marine Museum of the Louvre and in the British Admiralty collections.

These ships that never went to sea range from three feet to six or eight feet in length and their masts are sometimes twelve feet high. One of the most superb models in the Louvre is that of Royal Louis, which is dated 1690 and is absolutely perfect in every detail. An unusual feature of this model is that under its stern stands another, and tiny one, which is there to illustrate the relative proportion of the big model to the actual vessel. In France

the aid of the greatest designers and court painters was solicited for the decoration of the vessels of this most ornate period, those for the famous Soleil Royal having been made by Coysevox. Pierre Puget and Le Brun are known to have made the decorations for other ships of that time. These official French models are seldom seen outside of France, but this cannot be said for those of the British Admiralty. By some means an occasional one has disappeared from the official museum and not a few of them have found their way into private collections in this country. Mr. Wiles has an Admiralty model, that of a British fifty gun dating from 1745, which is so complete that the tiny copper cooking vessels can be seen on the galley stove, the deck of the ship being left unplanked in parts to give a view of the interior of the hull.

Colonel Harry H. Rogers, who is an ardent collector in this field, has an unusually fine group of British Admiralty models, chief among which are the models of the Royal William and a couple of the Charles II type. A typical example of this class of model is represented in the photograph of an early type of frigate, the H. M. S. Juno, dating from 1757, in the collection at the South Kensington Museum. In the New York Yacht Club collection is another of these Admiralty models, a warship of the last half of the seventeenth century that was found by Stanford White and presented to the club by the late J. Pierpont Morgan. It is known as the Royal Sovereign and is believed to have been abstracted in some way during the transferring of the collection of models from Kensington Palace to the Naval College at Greenwich in 1830. Below the water-line the hull is left unplanked so as to show the method of building. The ship has an unusually ornate stern, with much carving, gilding and three poop-lanterns resem-

bling Venetian lamps of the Renaissance. In the yacht club collection is also a fine model of the Half-Moon which was made in Holland at the time the reproduction of Hendrik Hudson's famous ship was sent to New York to take part in the Hudson-Fulton celebration.

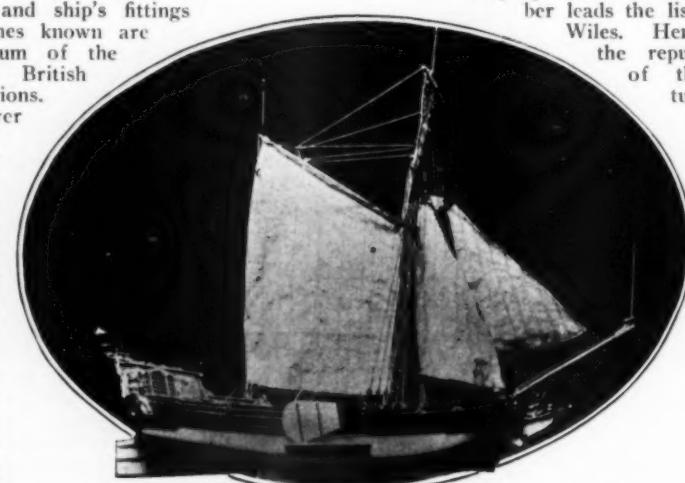
In recent years interest in collecting and building these miniature craft has brought so many men, and some women, into the field that there was formed three years ago the Ship Model Society, which now includes about sixty members, the organization having given one exhibition in the Fine Arts Building in New York in the spring of 1921 of models loaned by the members. Included among the members are bankers, lawyers, authors, artists, writers and yachtsmen. There are two women members, who are collectors of models pure and simple. Clarkson A. Collins, Jr., has about

fifty specimens in his collection, which in number leads the list along with that of Mr.

Wiles. Henry B. Culver has won the reputation of making some of the finest models ever turned out in this country,

although he is a lawyer by profession. He frequently exhibits the elaborate and ornate models he builds at the annual displays of the Architectural League and elsewhere. Junius S. Morgan, Jr., of the great banking firm, not only collects models, but has already built a very fine one of his own racing yacht in contradistinction to the usual custom of collectors of building models of ancient craft.

Booth Tarkington, novelist and play-

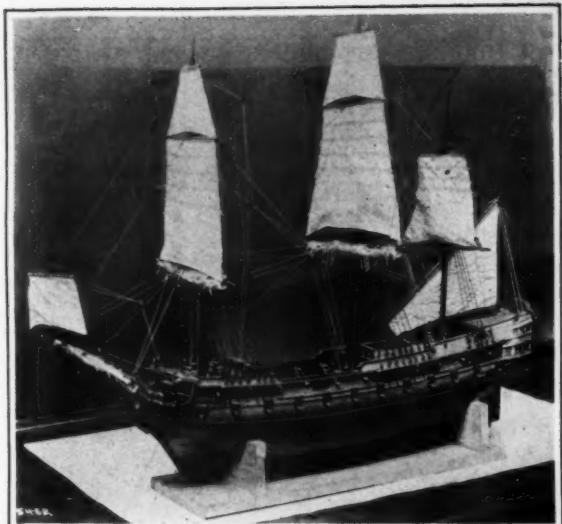


Model of a Seventeenth Century Dutch Admiralty Yacht by E. W. Ottie

wright, has an interesting collection of models in his summer home in Maine. T. A. Howell, sugar refiner, has one of the finest groups in this country. Carlton T. Chapman, W. L. Aylward, Gordon H. Grant, Henry B. Snell, Ezra Winter and C. H. Patterson, all marine artists, also have collections, Mr. Chapman being one of the senior devotees of this pastime. The prize model of his collection is an Italian warship of the eighteenth century and he has several models of full-rigged merchantmen and of small craft.

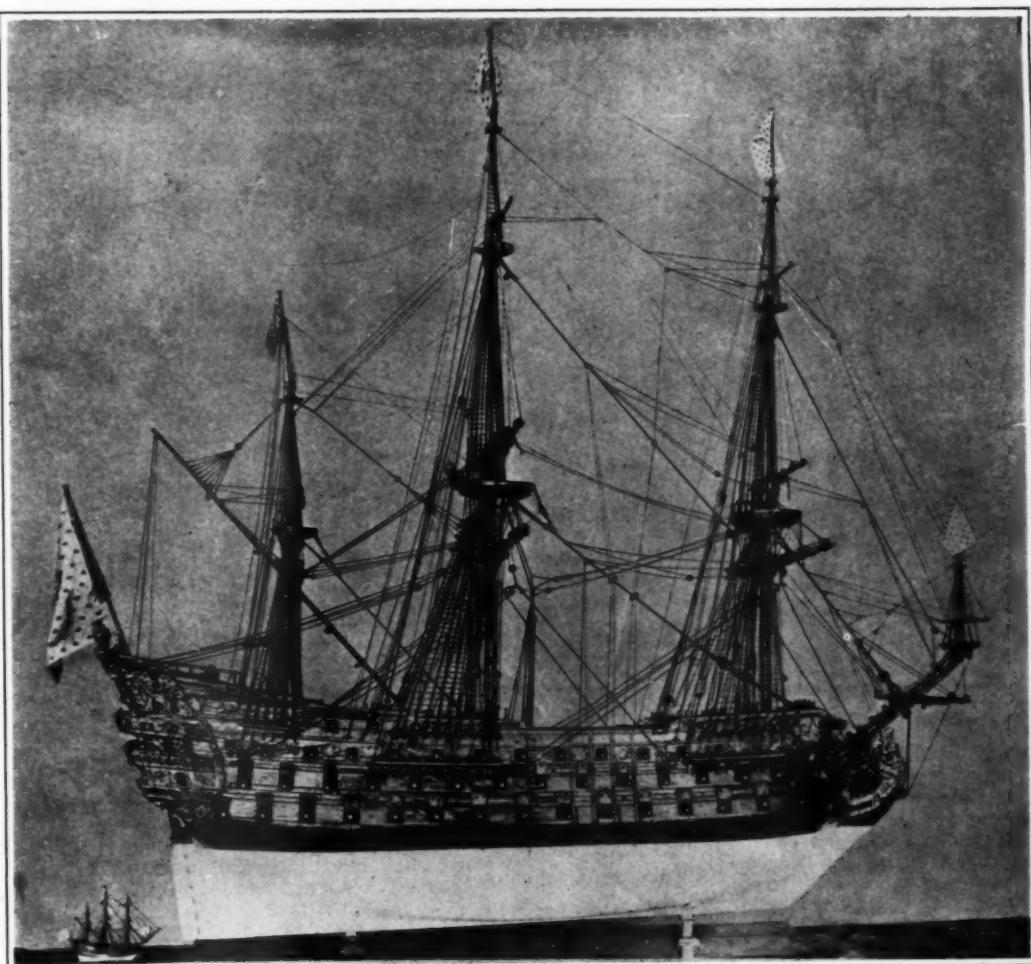
One of the features of the great collection of models in the Louvre is the small craft of all nations, and it was this that inspired Mr. Wiles to reconstruct a model of the famous Block Island boats from measurements he made of a wreck of one of these double enders, and also to build a model of a North River sloop, a type of craft that played an important part in the passenger and merchandise traffic on the Hudson River before, and even after, the advent of the steamboat. This model of the North River sloop, although not as attractive to the eye as many of the ornate types, is a superb piece of craftsmanship and is truly important since it preserves a craft that has now passed out of existence. It is because these authentic models embody ship facts for maritime history that they have been considered worthy of preservation by European sea powers. It must be understood that unless a model is an absolutely correct reproduction of its original it is not considered of real historic worth. This is the main reason why so many models made by sailors fail in the scale of perfection. While so far as masts and rigging are concerned they are usually technically perfect, the hulls of their ships are generally faulty, a sailor being apparently indifferent to that part of a vessel below the waterline.

Bruce Rogers, a leading authority on typography in



*Model of the Dutch fifty-gun ship-of-the-line Hollandia
1690 by E. W. Ottie*

America, is another well-known collector and builder of model ships. The first model he built, about ten years ago, was an exquisite reproduction of a French man-of-war of about 1660 that he exhibited at the Boston Society of Arts



*The Royal Louis 1690, a model in the famous collection of the Louvre, Paris
The miniature model astern was made to show the proportion of the larger model to the actual ship*

(Courtesy of International Studio)



*An English Privateer, Topsail Schooner of 1810
A model in the collection of Irving R. Wiles*

and Crafts. E. W. Ottie, of Boston, is another collector and a builder of many models, his Spanish galleon having been exhibited in Boston, at the Chicago Art Institute, at the San Francisco Art Museum and in Omaha, this record illustrating the countrywide spread of interest in this form of decorative art objects, as ship models are so often regarded. Among the unusual and interesting types Mr. Ottie has built in the last ten years are a model of a Dutch Admiralty yacht, dating from 1666; a model of the United States frigate Constitution (which has been exhibited in New York, Indianapolis and Chicago); a Dutch ship-of-the-line

of the late seventeenth century; and an English East India-man of 1800. Each one of these is technically correct in every detail and represents wide study, the collecting of books on old ships usually going with collecting models at the remote time in the annals of model collecting; when Mr. Wiles and Mr. Drake were practically the sole amateurs of models in America, one of these tiny craft could be bought for almost any sum, twenty-five dollars being the maximum figure. But when more collectors came into the field prices began rising, until within the last few years as much as eight thousand dollars has been paid for a very



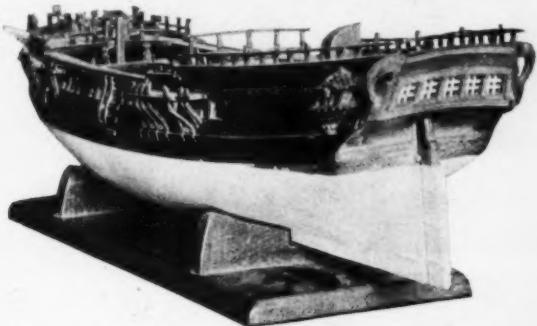
Model of the U. S. frigate Constitution, 1812, by E. W. Ottie

fine specimen. There is one model, made for an American collector, which is reported to have cost thirty thousand dollars and to have taken three years to build. The finding of a fine model today and the acquisition of it at a low figure is a collector's dream seldom realized. Occasionally a collector with a keen eye can find a gem in a rubbish heap. A case in point is the builder's model of a gun-brig of the late eighteenth century in the private collection of Mr. Collins. When he first saw this model it was in fragments, and only his keen eye for the intimate details of old ships enabled him to realize what the huddle of sticks actually was. It is due to his knowledge and skill with tools, combined with infinite patience, that the model stands as it does today, a perfect example of type and time in British ship building. One of the interesting and apparently inevitable results of this rise in the monetary appreciation of ship models is the trade that has grown up in faking old types. Within the last year a factory has sprung up in Germany where old models are re-



Model of a Spanish galleon of 1660 by E. W. Ottie

produced as a regular business, boys trained in handicraft making different parts of the ships and older hands assembling the parts into a whole model. They are offered here at such low prices that no one familiar with the value of real models would ever be deceived by them, from this viewpoint alone, to say nothing of the amateur experts' ability to detect the modern evidences throughout each of these models. As they are usually bought solely for their decorative merit there is little deception about this type. The model of the Santa Maria was copied so much a few years ago that they became a drug on the market and few amateurs or dealers in antiques would look at one submitted for purchase. This general type of fake model is very easily identified by the knowing amateur. But now and again one comes on the market that demands actual knowledge of the ships of the period it represents to detect the deception. Recently such a model was offered to an



*Builders' model of a late eighteenth century gun brig
(Collection of Clarkson H. Collins, Sr.)*

American collector as a genuine old specimen. It was in a handsome old Dutch case that added much to the effect of the whole. But when the collector actually studied the model and saw that it had a wheel instead of a tiller and that the yards were suspended from the masts by what sailors call a sling and truss of iron, he knew it was a pure fake. The receptacle turned out to be a genuine old Dutch clockcase.

The practical effect of this form of amateur collecting is to preserve for future study by marine architects and students of maritime history types of native American vessels, many of which would have disappeared from actual representation without the help of our amateurs. In collecting such models and in making models of obsolete types, like the North River sloop, they have done an inestimable service to a nation whose ships have played so important a part in the history of sea power and maritime trade as has the United States. They also perform the signal service, vital to every maritime power, of keeping alive and cultivating a love of the sea and ships, a masculine characteristic particularly important to a country like our own.

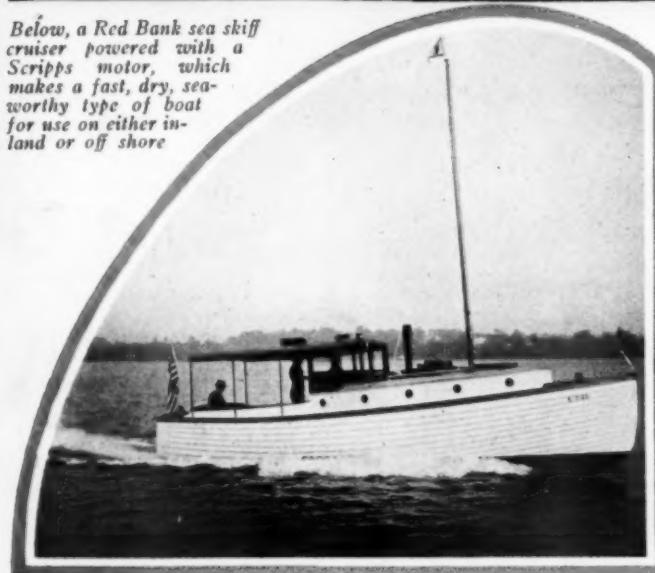
If this form of collection had been begun by American amateurs a half century before it originated here it is probable that we would now possess many good models of the most famous type of vessel that ever slid down the ways of a builder's yard. This was the famous clipper ship whose sails once whitened every sea, carrying an enormous part of the cargoes of the world, and whose records for fast passages have never been equalled by the sailing vessels of any other nation. As it is now, a good model of a clipper ship is a great rarity.

Memory, the winner of the sail yacht race from New London, Connecticut, to Bermuda. *Memory* is owned by R. M. Bavier of New Rochelle, N. Y. Although now rigged as a yawl she was formerly one of the New York Yacht Club's 50-footers. She is powered with one of the new 50 h.p. Kermath motors which apparently does not affect her sailing qualities in the slightest degree



Photographs by
M. Rosenfeld

Below, a Red Bank sea skiff cruiser powered with a Scripps motor, which makes a fast, dry, seaworthy type of boat for use on either inland or off shore



The 65-foot, twin-screw express cruiser *Polly Lee*, built by the Great Lakes Boat Building Corporation of Milwaukee. This is the type of motor cruiser which is ideal for both Northern and Southern waters. *Polly Lee* is powered with two 8-cylinder Sterlings



Photograph by E. Levick

Of Such Things Is

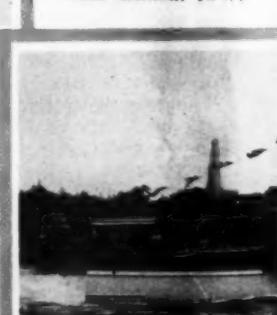
New Craft of Many All Requirements



A glimpse of Newport, Rhode Island, during the rendezvous of the New York Yacht Club



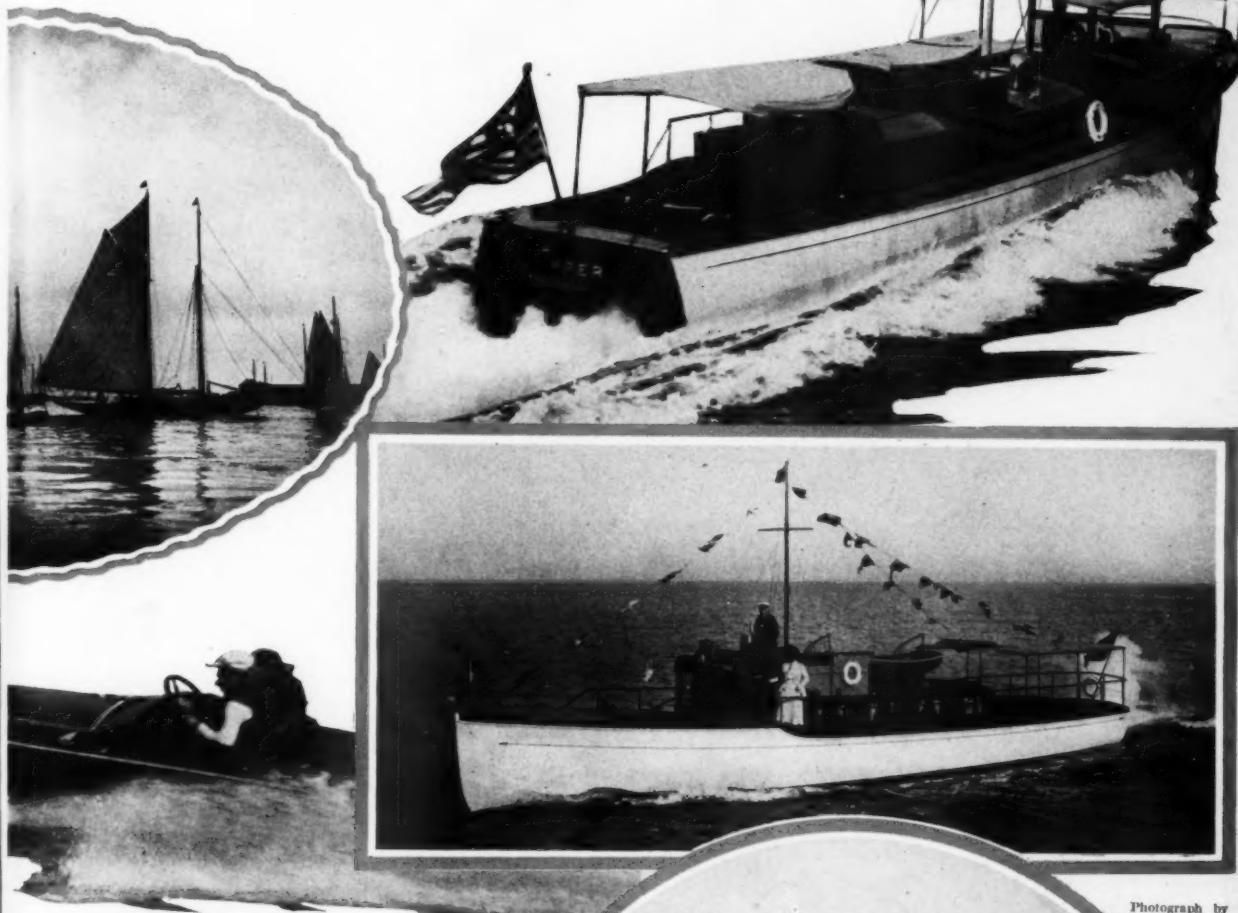
Miss Packard, a 26-foot runabout, with a 200-h.p. Gold Cup model Packard. This boat does 50 miles an hour without effort



Motor Boating Made

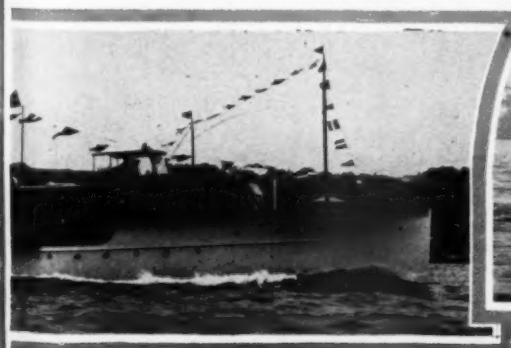
Types Designed to Suit
of Sea and Service

Crimper, a Consolidated built express cruiser, recently completed for J. S. Cosden of New York. Crimper is powered with two 300 h.p. Speedway motors

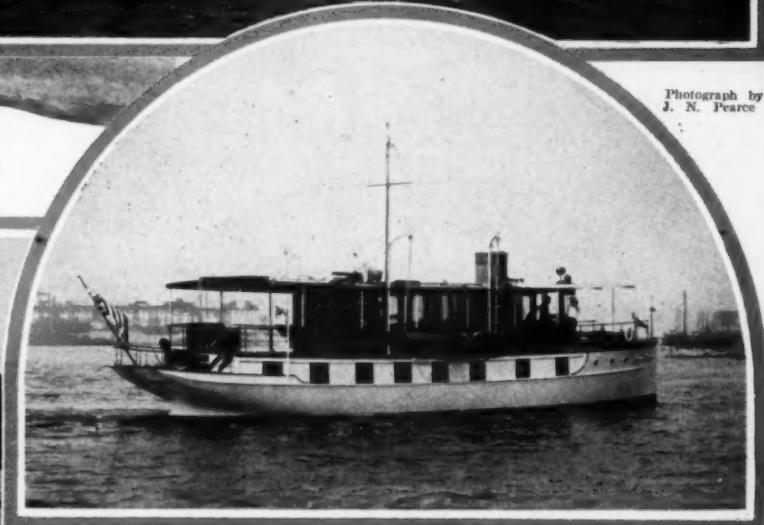


Sea Lady, a 58-foot cruiser, powered with a Scripps motor, owned by Henry A. Wise Wood

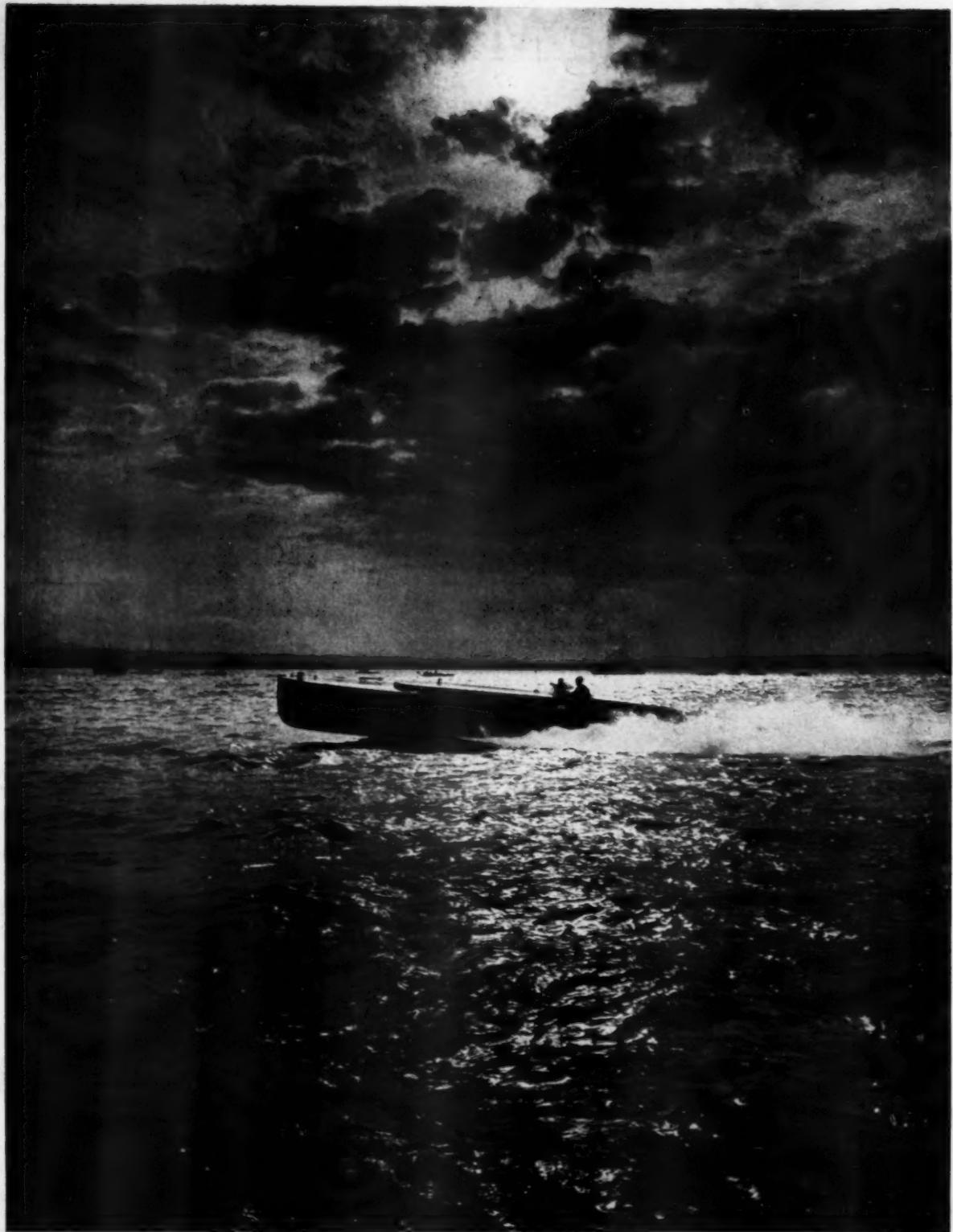
Photograph by
J. N. Pearce



Paprika, owned by Senator Henry F. Lippett of Providence, R. I. She is 77 feet long with two Sterling Viking engines totalling 600 h.p.



Ocoee, a new type of motor house yacht, built by the Mathis Yacht Building Company of Camden, N. J. This yacht, which is powered with two Sterling motors, is owned by W. S. Milne, of Chattanooga, Tennessee



Ionic III

Owner

Col. T. A. Duff, Toronto, Ont.
Sterling, 200 horse power

***I**F ever there was a boat which should have the title of a real runabout the award ought to go to Ionic III. Fast, seaworthy, safe, and always ready to run, are but a few of her virtues. She is of the type developed as the result of the Fisher-Allison race conditions, which type will once more be racing for this trophy next summer, probably at the Buffalo regatta.*

Briggs

and the House He Made Out of a Boat

By Frank Stevens

Photographs by M. Rosenfeld

A corner of the study where Clare Briggs does his wonderful work of supplying sunshine in the life of ordinary mortals



LAST Thursday I met, by chance, an old friend of mine.

"Why, Steve," he exclaimed, "I'm sure glad to see you. And I'm glad that you've finally been bitten by the boating bug." This friend is an enthusiastic motor boatman. "I read one of your articles in MoToR BOATING and wanted to sit right down and write you to offer my congratulations on the fact that you had bought a cruiser. It's the greatest sport a-going, isn't it?"

I agreed that it was. We talked about boats for a bit, we discussed the inside route to Florida. (I can't talk about much else these days) and kindred subjects that are so dear to the heart of the motor boatman. And then —

"Say, Steve, you know Clare Briggs, don't you?"

I admitted that I did.

"Have you ever seen that wonderful big house of his up at New Rochelle?"

I admitted that I hadn't.

"Well, sir, I haven't either. But a good friend of mine—and Briggs'—Bill Sweet—perhaps you know him—was telling me about it the other day. It's built like a boat, you

know, or out of a boat, or something like that. And Bill says that Briggs has more ship models than he ever saw before gathered together in one place. What do you know about that—building a house out of a boat?"

Well, I didn't know anything about that. But I made up my mind I was going to know about it. That idea, of building a house out of a boat, appealed to me.

Three days later I was in New Rochelle looking for that house. I cruised around for about an hour and then asked a cop—they call them police officers up in New Rochelle.

"Clare Briggs' house?" he asked. "Sure I know where it is." He gave me the necessary road directions. "An' you can't miss it either," he added. "Sure it's a boat inside. And he's got some sort of way of rocking the thing just like a real boat. His study is in the fire place and you have to go up some secret stairs. It's some house! And after you make the turn through the gates just keep right on—you can't miss it!"

A house built out of a boat! Some scheme for rocking the thing! A study in the fireplace! Secret stairs! Do you wonder that I exceeded the speed limit to get to that house?



The house built from old ships' timbers which stands out as a striking example of the art of the architect



The interior of the living room is unique. The floor is a portion of an old ship's deck, while the furnishings and models are in striking contrast

Briggs laughed when I told him my story.

"Well," he said, "not as bad as all that! There is no way of rocking the thing, nor any secret stairs as I'll show you; but the house is built out of a boat—the old Costa Rican that plied between New York and Central America."

And then while Rosey went around and took the photographs you see on these pages, Briggs and I went up to his study and he told me about his house, and by the way—before I forgot it—the study is not in the fireplace nor is it approached by any but perfectly regular stairs. Moreover, there is no way of rocking the thing! We'll tell the truth, the whole truth, and nothing but the truth!

"I wanted to build a new house," said Briggs. "I wanted something different from one of these regular houses where the hall in the center opens to a living room on the left and a dining room on the right with a butler's pantry and kitchen in back of the dining room. I had an idea that it might be possible to go down in New England somewhere and get an old house—and bring it here. Henry Morse, my architect, said it could be done but he was not particularly enthusiastic about it—I could see



The entrance door is built up from heavy sections of ships' planking and swings on large hand wrought iron hinges

me that I was crazy—crazier than usual. And I must admit that there were moments when I thought they were right. But Morse knew what he was doing every minute of the time. And the house proves it, don't you think so?"

The house does prove it. We went down into the living room; a great comfortable livable room! And what a floor that room has! Made from the deck planks of the old Costa Rican! Planks over forty feet long, eight inches wide and two and a half inches thick. And caulked with

that. Now, you know I've always loved the sea; that is, the romance of it, the tradition of it. One day when we were talking over the proposed house I happened to mention to Morse something about this sea stuff. 'Why not build the house out of a boat?' he suggested. 'Get the timbers from some old sailing vessel that has done her share of the world's work.'

"That was the start of the idea. The next problem was, Where to get the boat? Finally Morse located one down at Perth Amboy. We went down there one day to look it over. Certainly in her day the Costa Rican must have been a beaut; but as I looked at that old hull I did not see for the life of me how it was going to help us any. The timbers and planking were green with slime—but in splendid condition. Well, we bought the Costa Rican as she was and shipped her here. People told

me that I was crazy—crazier than usual. And I must admit that there were moments when I thought they were right. But Morse knew what he was doing every minute of the time. And the house proves it, don't you think so?"

The house does prove it. We went down into the living room; a great comfortable livable room! And what a floor that room has! Made from the deck planks of the old Costa Rican! Planks over forty feet long, eight inches wide and two and a half inches thick. And caulked with



marine glue and oakum! Moreover, the lintel over the fireplace, the ceiling beams, the wall panels—all from the same old ship! And not spoiled by carpenter's plane and sandpaper; but in the rough—just cleaned of the slime that gathered as the old ship lay on the beach at Perth Amboy—her work done.

And all about the room were ship models—the best collection I have ever seen. Clipper ships, those wonderful old ocean expresses of bygone days, schooners rigged fore and aft, and schooners square rigged; cutters and brigs and brigantines!

I was taking in the utter comfort of the room when Briggs said, "Come on down into the hold." And we went downstairs to the billiard room.

As I entered this room it seemed to me that I heard that piratical parrot of old screaming, "Pieces of eight, pieces of eight!" It seemed to me that I heard old John Long stump across the floor; that I saw the Doctor, the Squire, Jim Hawkins and Billy Bones!

Rosey followed us into the room.

"Shiver my timbers!" exclaimed Rosey, "what a room!" Now perhaps I have not quoted Rosey accurately—word for word; but that was what he should have said anyway!

And it was a wonderful room. The old rudder of the Costa Rican formed the breast of a huge fireplace. Rest-



Another corner of the living room showing the massive timbers and the original construction. Many wonderful ships' models decorate every nook and corner of this dwelling

Down in the hold the fireplace is enclosed by the old ship's rudder and ornamented by many historical relics of the old whaling days

ing on a ledge in front of the rudder was the old tiller. The room was lighted by old ship's lanterns—except for a modern lighting fixture over the billiard table. At the opposite end of the room from the fireplace was the old Costa Rican anchor—Briggs has named his home the Blue Anchor. As I looked at this old anchor I was reminded of what Joseph Conrad wrote about a ship's anchor: ". . . Let go!—this is the final word of a ship's ended journey, the closing word of her toil and of her achievement. In a life whose worth is told out in passages from port to port, the splash of the anchor's fall and the thunderous rumbling of the chain are like the closing of a distant period, of which she seems conscious with a slight deep shudder of all her frame. By so much is she nearer to her appointed death, for neither years nor voyages can go on forever. It is to her like the striking of a clock, and in the pause which follows she seems to take count of the passing time."

I wondered what were the circumstances under which that old anchor, that old emblem of hope, had let go, for the last time!

From the hold we went back (Continued on page 253)

The PETREL'S NEST

By

Dorothy Williams

Illustrated by

Martinus Anderson

PART I

Anyone Who Has Ever Been to Barnegat Will Recognize the Salt Atmosphere Which Permeates This Picturesque Village by the Sea, with its Lighthouse and Many Relics of the Old Sailing Ships

THE fresh sea breeze caught Mother Baily's bonnet strings and sent them fluttering out the car window. At sight of the salt meadows and blue waters her heart went fluttering as widely as her bonnet strings.

She couldn't resist thrusting her head out the window to sniff the good sea air and catch a closer glimpse of the tall wind-stirred grasses that glistened in the summer sunshine. Scattered in wild profusion among the green blades were the deep pink of meadow hollyhock and the more delicate morning-glories twined timidly about the hardy stems of sturdy dark cattails. Here and there on the glassy waters of the bay gleamed a white sail.

Glancing across the aisle and through the opposite window she saw an endless chain of grass-topped sand dunes with the great expanse of ocean sparkling beyond and in her hungry ears roared the ceaseless, indescribable, blessed sound of the sea.

Tears came to her eyes and rolled down her wrinkled cheeks. Oh, it was all a thousandfold more beautiful and wonderful than she had all these years been remembering it!

Mother Baily was born in Barnegat, which in her time was equivalent to saying that she came of seafaring stock. Before macadamized roads brought the city into the country, before the privately-owned four riggers gave way to company-owned steamships every mother's son of Barnegat village followed the sea. Jason Baily, Captain Baily's youngest son, had affronted the community when he went to the city to learn to be a doctor. That he should ignore the traditions of his father's and of his native village, every Barnegater took as a personal injury. His father never spoke of him again but Mother Baily, his mother, who owned a board in her father's ship, sent him money in the lean days of his profession.

Jason Baily was at the height of his success when his father died, leaving his mother alone and with slender means. She would have been satisfied to spend the rest of her days there on that narrow strip of land between the bay and the sea in that tight, snug little house where

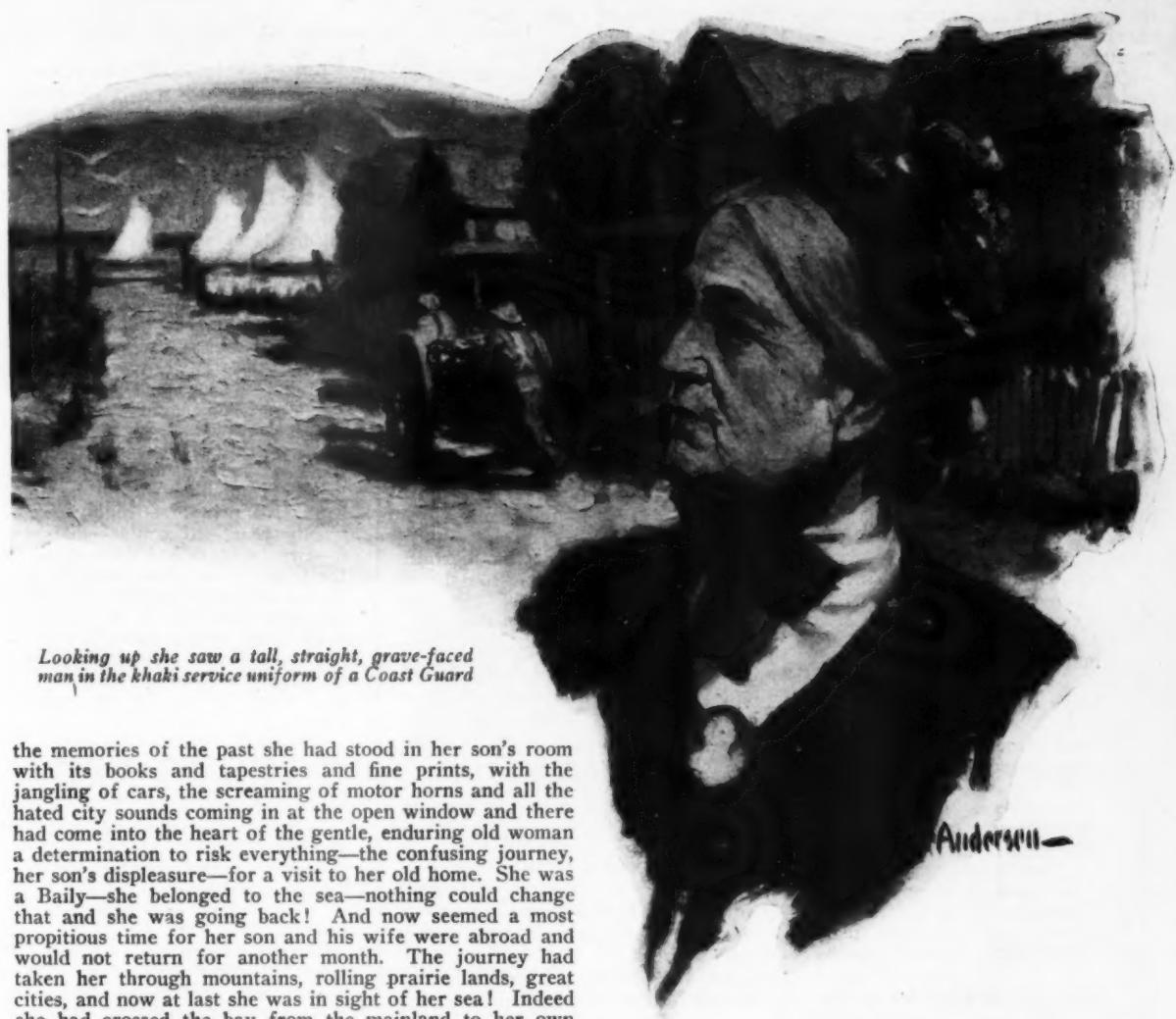


she could hear the roar of the ocean, the whistling of the wind; where she could watch the fishing boats come and go and see the faithful lighthouse and hear the screeching of the seabirds. But her son declared she must not live alone in that leaky, old ark, that she must come to the city where she could enjoy the comforts of his home. While still in the first terrible anguish that enveloped her after her husband's violent sea death, she had permitted Jason to uproot her, to sell the Petrel's Nest, to take her into a new environment where he thought she would be happier than amid familiar scenes with their torturing memories. She had not seen Jason for years; it was sweet to have him so solicitous, amusing to have him think her so helpless—she who had been called "the little old tar" and "The Storm Bird"—she who had weathered many a rough gale!

Her son's life was crowded; he was rarely at home. Mother Baily never got very close to his fashionable wife. Their one child had been surrounded with nurses and governesses and packed off to school just when she might have been a companion. There was no sunny kitchen with its red table cloth and its walls varnished like a sea deck where she could cook and sew and read her Bible. She was a housekeeper with no house to keep, a mother with no one to mother; a seagull in a rose garden. But she was no sentimental nor was she given to self-pity. A strange shift of wind had put her into a strange port. There was nothing to do but wait for a change of weather!

But when the twentieth anniversary of her husband's death had rolled round and she realized that her own days were growing numbered and in all these years she'd had no glimpse of her island or her sea she resolved to make a journey to Barnegat. Her son had settled in a Western city that seemed to Mother Baily at the very opposite ends of the earth from her home. This bewildering distance together with her terror of trains and her son's insistence that she was better off away from a place of such tragic memories had hitherto made a visit to Barnegat unthinkable.

On this anniversary day that brought back so poignantly



Looking up she saw a tall, straight, grave-faced man in the khaki service uniform of a Coast Guard

the memories of the past she had stood in her son's room with its books and tapestries and fine prints, with the jangling of cars, the screaming of motor horns and all the hated city sounds coming in at the open window and there had come into the heart of the gentle, enduring old woman a determination to risk everything—the confusing journey, her son's displeasure—for a visit to her old home. She was a Baily—she belonged to the sea—nothing could change that and she was going back! And now seemed a most propitious time for her son and his wife were abroad and would not return for another month. The journey had taken her through mountains, rolling prairie lands, great cities, and now at last she was in sight of her sea! Indeed she had crossed the bay from the mainland to her own island and must surely be near the end of her travelling. Even now the conductor was calling—

"Barnegat Inlet!"

In a flurry of excitement Mother Baily put on her coat, tied her bonnet strings and clutching her satchel, made for the platform.

A few men with fishing rods and women with children and baskets fought mosquitoes and passed uncomplimentary remarks about the dilapidated old station, but the fluttering, exalted old lady neither saw nor heard them. She was like a child suddenly set down in the fairyland of its rosiest dreams.

No doubt the sleepy little town looked dreary and desolate to the strangers for its sidewalks were overgrown with weeds, and half covered with sand; the curbing had years ago been washed away at the rushing together of bay and ocean. The houses wore a gloomy aspect, were much in need of paint—had been for some thirty years. They were pretentious, mysterious houses with no end of turrets and cupolas and balconies. No one seemed to be living in any of them. The spaces between the buildings were little more than sand dunes with a thick growth of bayberry and beach plum bushes. There was a decrepit old hotel at the edge of the bay where gentlemen fishermen put up. The town looked for all the world like a deserted village. Indeed the only unghostly buildings was the Coast Guard Station with its gay roofs and green doors and apple pie yard. And then of course the grave and silent lighthouse with its coat of red and white.

Her satchel firmly grasped in her hands, Mother Baily walked about the town in a trance. At first the mere sound of the ocean and sight of the lighthouse filled her com-

pletely. Then the thought of the Petrel's Nest sent her oceanward.

But what tragic tricks the sea had been up to! It had completely demolished the dwelling of the lighthouse keeper; the beach front hotel lay collapsed before her very eyes and what had been a flat, firm beach was now a seething, turbulent sea beating against great jetties which gave way before it like sticks of straw! Of course, she recollects she had read about it—how the ocean was cutting away that part of the island, shaking the lighthouse to its very foundations, and how the state, when there was talk of replacing the lighthouse by a lightship, had rallied loyally to the old beacon, seeing to it that there were sufficient appropriations to keep it where it so long had stood, a guide to God's wayfarers of the sea! There were others than Mother Baily who had a real affection for the lighthouse!

In vain did she look for her old home. It had been built on a dune (the Baileys never could get close enough to the sea) but now there was no vestige of it though she walked the brow of the hills quite to the end of the town. The sea had claimed that, too. But then, was it not fitting that it should take all that belonged to the Baily's as well as the Baily's themselves? Had she not promised that the sea should not be cheated even of her?

As she walked through the soft sand her feeble old hands clutched lovingly at the strong grasses. Presently she halted, her body erect, head thrown back, looking out at sea like a long-dethroned goddess came again to her own. But in a moment the goddess's head was bowed, tears streaming

down her checks. Memories bitter and sweet came to her, the events of a long lifetime passing before her; visions of carefree childhood hours, sweetheart days—wife and motherhood. All the deepest ties of her life were bound up with that sea—that tragic, beautiful, deadly, fearful sea that had robbed her of father, son, husband, home, and which she still so strangely loved! Ah, surely it was not wicked that she should wish to end her life in that sea instead of waiting in that stuffy, luxurious home for death to claim her!

A poem she had discovered in a book at her son's house came to her now as it had so often come to her of late:

Pity the bird that has wandered,
Pity the sailor ashore;
Hurry him home to the ocean,
Let him come here no more.

High on the seacliff ledges,
The white gulls are trooping and crying,
Here among rocks and roses;
Why is the seagull flying?

Too long had the seagull tarried in the rose garden! She would have a month—a whole blessed month of this, and then—the sailor to his sea.

As she walked back toward the town, past the wreckage of homes, she could not put down a feeling of disappointment that The Petrel's Nest had been destroyed before she'd had one last glimpse of it. Perhaps these dry, bleached timbers that lay huddled here in the protection of a sand hollow were the beams of her roof-tree!

She had turned down one of the sand-strewn streets and was making toward the bay when the cry of a child aroused her. Looking up she saw a dark-haired, sunburned boy of three sitting on a doorstep, screaming lustily and rocking back and forth, one round, blood-smeared little leg nursed in his lap.

"I cut my leg," he cried, tears making clean marks down his chubby face.

Mother Baily was at his side in a moment. Then in her miraculous, mothering way, she soothed him, washed the cut, bandaged it with a large unused handkerchief she carried in her bag.

The child was enchanted with the bandage—no doubt he thought it a mark of distinction for he held out his leg and called proudly to a passerby:

"Thee my thore leg?"

And the first thing Mother Baily knew she was feeding him mints out of her black silk bag and telling him stories and trotting him on her knee and doing all sorts of delightful, unhygienic, old-fashioned things that are forbid in up-to-date baby books. Memories, and despair and yearnings were nothing compared to this lapful of flesh and blood humanity with its lisping, its caresses and its bandaged leg!

"What's your name?" she questioned, her withered hands smoothing his thick hair.

"Cappy," he answered, grinning up at her.

"Cappy"—of course! Hadn't every third male baby Barnegater been nicknamed Cappy since the village had begun?

"And where do you live?" she put next.

"There."

He pointed a grimy hand to a house a few doors away. Following his direction Mother Baily looked up to see an arklke house with faintly yellow shingles and a low projecting roof that showed vague signs of having once been red; an upper porch ran around the building and looked for all the world like the promenade deck of a ship. Above the doorway was the name "The Petrel's Nest."

The child had squirmed from her embrace and was tugging at her hand.

"Home," he was saying, his hand still tightly clasping hers.

"Home," she repeated, following him like one in a dream.

The house stood close to the cracked, weedy pavement, the unkept yard was overgrown with bayberry and salt grasses; scattered through the green of these ran a riot of gay verbenas—that brilliant, flaunting little flower that grows so luxuriously in sandy soil. Peeping out from all this neglect was a shy wooden sea-dog—not a very shapely, accurate fellow, but he served to guard the porch steps.

Mother Baily stood transfixed, taking in the mystery and wonder and pity of the place. There could be no doubtting it, she told herself, for there was one of the sea-dogs that her father, being always clever at whittling, had carved from the beam of a shipwrecked vessel. But where was the neat white picket fence with the two miniature light-houses for gate-posts? Where the tidy yard with its ferns, its old figureheads placed carefully about the spick-and-span garden walks, the huge anchors and other wreck relics that her father, in his years of retirement, had gathered together and which she and her husband had prized so highly? But twenty years—of course—that was it—twenty years had done much to the island. And then presently her reason told her that some enterprising person had moved her old home from its precarious perch by the sea. No doubt the old relics had been destroyed by storms or perhaps sold to a junk dealer by the present owner.

"Mother"—"Mother," Cappy was shouting to a young woman who sat sewing on the porch, "Ith hurt my leg."

The young woman took a few more stitches in the hat she was fashioning before she rose, and said, a trifle irritably—

"Cappy, you're always getting into mischief."

Mother Baily noticed that she had cold blue eyes that were rather pretty and that her mouth was spoiled by the downward curves at its corners. Her eyebrows were plucked out into a thin, scanty line

and her hair, though as glorious as a golden sunset, was tortured into a coiffure that resembled a hayrick. There was in her face and bearing the look of a woman who considers that life has not given her all it owed her.

"He's cut his leg on a bottle," Mother Baily explained. "I think you'd better put a disinfectant on it."

The young mother came down the steps and took Cappy by the hand. But he was loath to leave his new-made friend.

"Thay," he insisted, holding fast to Mother Baily.

"Did you put the bandage on?"

Mother Baily nodded.

"That was very kind of you."

Her voice was civil enough and gave the old lady courage to ask—

"Might you—might you take boarders?"

"No, indeed," came the quick reply. "It's all I can do to take care of this shack and the baby."

"Well, it didn't used to be a shack," was on Mother Baily's lips but she checked the words. Perhaps the young woman's gifts lay in other directions than housekeeping. All women didn't like housekeeping though Barnegat women were noted for keeping their homes shipshape. This girl didn't belong to Barnegat—Mother Baily felt that at once.

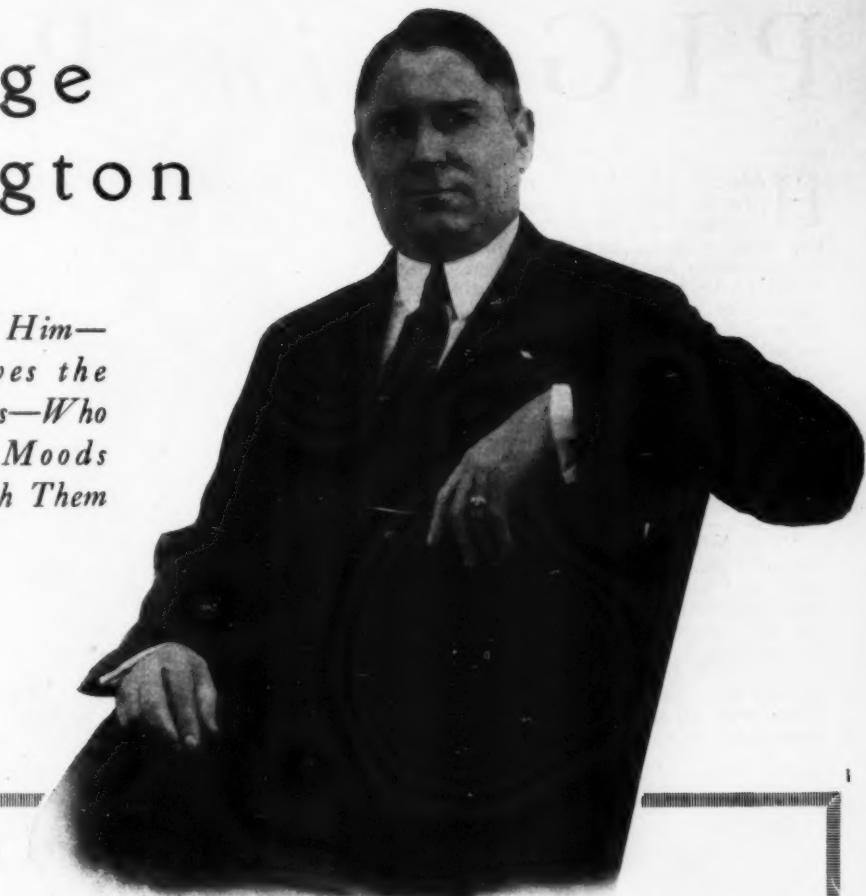
"The Bay Hotel is open this year," Cappy's mother added, as though really wanting to be kind.

In the intoxicating joy and pain of the afternoon's wanderings Mother Baily had been conscious of no bodily demands but now she felt suddenly (Continued on page 253)

George Codrington

*You Have Heard of Him—
A Man Who Loves the
Purr of Big Engines—Who
Can Sense Their Moods
And Sympathize With Them*

By Norman Beasley



JUST had a chat with George Codrington, of the Winton Engine Works, Cleveland, Ohio.

You know—or, you have heard of—Codrington. A fictionist, with a penchant for twanging a high arrow, would find plenty of material in him.

I found Codrington, sitting in his room in a 42nd street hotel. His watch was in his hand and he was trying to figure out if he had time to put in a long distance telephone call for Los Angeles, complete it and still catch his train. Having had experience with New York telephone service, he decided he didn't.

Codrington started off in Palatka, Florida. He went through grade school there and moved to Jacksonville, going into the employ of the Jacksonville Ferry Co. A few years of this and he became assistant superintendent. That job wasn't to his liking and he shifted over to the J. L. Ross Company, casually demoting his salary check and becoming a general handy man in the engine room of one of the company's coastwise freighters.

"That's where I got my greatest thrill," he recalled. "Always, I had wanted to be where there was machinery whirring. To me, those engines were the greatest things

in the world. I loved them—never tired of looking at them, fussing with them, or cleaning them. It was here I obtained my mechanical education on the internal combustion engine. What a glorious undergraduate period that was!

"I learned engines from practical experience. Not because I did it, but, I believe, that is the best way. You get to know all their moods. You sympathize with them when they're cranky. You laugh with them when they purr. The landsman doesn't realize what a wonderful thing an engine is. The way to know is to be out on a rough sea in one of those pitching, creaking, wallowing freighters . . . you can feel the old engines straining, with everything they've got, to push the ship's nose into the swell—and keep it there.

"Or, when a nor'wester comes riding down, picking up the old boat, trying to toss her around . . . but the engines just take hold of things—and drive on.

"Say"—and he leaned over and slapped my knee—"those were the greatest days, ever!"

For years thereafter Codrington traveled pretty much over the world in Ross ships. Finally he was taken over to be in charge of the sea-going yacht, (continued on page 122)

PIGS *in* POKES

By Peter B. Kyne

Had either Mr. Gibney or McGuffey been watching Captain Scraggs for the next twenty minutes they would have been much puzzled to account for that worthy's actions. First he dodged around the block into Drumm Street, and then ran down Drumm to California, where he climbed aboard a cable car and rode up into Chinatown. Arrived at Dupont Street he alighted and walked up that interesting thoroughfare until he came to No. 714. He glanced at a sign over the door and was aware that he stood before the entrance to the offices of the Chinese Six Companies, so he climbed upstairs and inquired for Gin Seng, who presently made his appearance.

Gin Seng, a very nice, fat Chinaman, arrayed in a flowing silk gown, begged, in pidgin-English, to know in what manner he could be of service.

"Me heap big captain, allee same ship," began Captain Scraggs. "On board ship two China boys have got." (Here Captain Scraggs winked knowingly.) "China boy no speak English—"

"That being the case," interposed Gin Seng, "I presume that you and I understand each other, so let's cut out the pidgin-English. Do I understand that you are engaged in evading the immigration laws?"

"Exactly," Captain Scraggs managed to gasp, as soon as he could recover from his astonishment. "They showed me your name an' address, an'



Now, looky here, you bloody heathen. It'll cost you just five hundred dollars to recover these two stiffs an' close my mouth. If you don't come through I'll make a belch 'f th' newspapers an' they'll keel haul an' skull drag th' Chinese Six Companies an' the Hop Sing tong through the courts for evad'n' th' laws o' th' Interstate Commerce Commission

PART TWO

Illustrated By
Anton Otto Fischer

The Concluding Installment Finds our Adventurers With a Dubious Purchase on Their Hands, Which, by the Use of Ingenuity and Quick Wit They Manage to Dispose of at a Goodly Profit to Themselves

they won't leave th' ship, where I got 'em locked up in my cabin, until you come an' take 'em away. Couple o' relatives of yours, I should imagine."

Gin Seng smiled his bland Chinese smile. He had frequent dealings with ship masters engaged in the dangerous though lucrative trade of smuggling Chinese into the United States, and while he had not received advice of this particular shipment, he decided to go with Captain Scraggs to Jackson Street bulkhead and see if he could not be of some use to his countrymen.

As Captain Scraggs and his Chinese companion approached the wharf the skipper glanced warily about. He had small fear that either Gibney or McGuffey would show up for an hour, for he knew that Mr. Gibney had money in his possession. However, he decided to take no chances, and scouted the vicinity thoroughly before venturing aboard the Maggie. These actions served but to increase the respect of Gin Seng for the master of the Maggie and confirmed him in his belief that the Maggie was a smuggler.

Captain Scraggs took his visitor inside the little cabin, carefully locked and bolted the door, lifted the zinc flap back from the top of the crate of "Oriental goods," and displayed the face of the dead Chinaman. Also he pointed to the Chinese characters on the wooden lid of the crate.

"What does these hen scratches mean?" demanded Scraggs.

"This man is named Ah Ghow and he belongs to the Hop Sing tong."

"How about his pal here?"

"That man is evidently Ng Chong Yip. He is also a Hop Sing man."

Captain Scraggs wrote it down. "All right," he said cheerily; "much obliged. Now, what I want to know is what the Hop Sing tong means by shipping the departed brethren by freight? They go to work an' fix 'em up nice so's they'll keep, packs 'em away in a zinc coffin, inside a nice plain wood box, labels 'em 'Oriental goods,' and consigns 'em to the Gin Seng Company, 714 Dupont Street, San Francisco. Now why are these two countrymen o' yours shipped by freight—where, by the way, they goes astray, for some reason that I don't know nothin' about, an' I buys 'em up at a old horse sale?"

Gin Seng shrugged his shoulders and replied that he didn't understand.

"You lie," snarled Captain Scraggs. "You savey all right, you fat old idol, you! It's because if the railroad company knew these two boxes contained dead corpses they'd a-soaked the relatives, which is you, one full fare each from wherever these two dead ones comes from, just the same as though they was alive an' well. But you has 'em shipped by freight, an' aims to spend a dollar an' thirty cents each on 'em, by markin' 'em 'Oriental Goods.' Helluva way to treat a relation: Now, looky here, you bloody heathen. It'll cost you just five hundred dollars to recover these two stiffs, an' close my mouth. If you don't come through I'll make a belch t' th' newspapers an' they'll keel haul an' skulldrag th' Chinese Six Companies an' the Hop Sing tong through the courts for evadin' th' laws o' th' Interstate Commerce Commission, an' make 'em look like monkeys generally. An' then th' police'll get wind of it. Savey, policee-man, you fat old murderer? Th' price I'm askin' is cheap, Charley. How do I know but what these two poor boys has been murdered in cold blood? There's somethin' rotten in Denmark, my bully boy, an' you'll save time an' trouble an' money by diggin' up five hundred dollars."

Ging Seng said he would go back to Chinatown and consult with his company. For reasons of his own he was badly frightened.

Scarce had he departed before the watchful eye of Captain Scraggs observed Mr. Gibney and McGuffey in the offing, a block away. When they came aboard they found Captain Scraggs on top of the house, seated on an upturned fire bucket, smoking pensively and gazing across the bay with an assumption of lamblike innocence on his fox face.

At the suggestion of Scraggs, Gibney and McGuffey nailed up the box of "Oriental Goods," set both boxes out on the main deck, aft, and covered them with a tarpaulin. For about an hour thereafter all three sat around the little cabin table, talking, and presently it became evident, to Mr. Gibney's practiced eye, that Captain Scraggs had something on his mind. Mr. Gibney, suspecting that it could be nothing honest, was surprised, to say the least, when Captain Scraggs made a clean breast of his proposition.

"Gib—an' you, too, McGuffey. I been thinkin' this thing over, an' as master o' this ship an' the one who does the biddin' in o' these two Chinks at th' sale, it's up to me t' try an' bring you both out with a profit, an' I think th' sellin' should be left to me. I won't hide nothin' from you boys. I'm a-willin' to take a chance that I can sell them two cadavers to some hospital for dissection purposes, an' get more outer th' deal than you can, Gib, by passin' 'em off as floaters. I'm a-willin' to give you an' McGuffey a five-dollar profit over an' above your investment, an' take over th' property myself, just f'r a flyer, an' to sorter add a sportin' interest to an otherwise humdrum life. How about it, lads?"

"You can have my fraction," said McGuffey promptly; whereupon Captain Scraggs produced the requisite amount of cash and immediately became the owner of a two-thirds' interest.

Mr. Gibney was a trifle mystified. He knew Scraggs well enough to know that the skipper never made a move until he had everything planned ahead to a nicety. The mate was not above making five dollars on the day's work, but some sixth sense told him that Captain Scraggs was framing up a deal designed to cheat him and McGuffey out of a large and legitimate profit. Sooner than sell to Captain Scraggs, therefore, and enable him to unload at an unknown profit, Mr. Gibney resolved to retain his one-third interest, even if he had to go to jail for it. So he informed Captain

Scraggs that he thought he'd hold on to his share for a day or two.

"But, Gib, my dear boy," explained Scraggs, "you ain't got a word to say about this deal no more. Don't you realize that I hold a controllin' interest an' that you must bow to th' vote o' th' majority?"

"Don't I, though?" blustered Mr. Gibney. "Well, just let me catch you luggin' off my property without my consent—in writin'—an' we'll see who does all th' bowin', Scraggsy. I'll cut your greedy little heart out, that's what I'll do."

"Well, then," said Scraggs, "you get your blasted property off'n my ship, an' get yourself off an' don't never come back."

"F'r th' love o' common sense," bawled Mr. Gibney, "what do you think I am? A butcher? How am I to get away with a third o' two dead Chinamen? Ain't you got no reason to you at all, Scraggs?"

"Very well, then," replied the triumphant Scraggs, "if you won't sell, then buy out my interest an' rid my ship o' this contaminatin' encumbrance."

"I won't buy an' I won't sell—leastways until I've had time to consider," replied Mr. Gibney. "I smell a rat somewhere, Scraggs, an' I don't intend to be beat outer my rights.

Moreover, I question McGuffey's right t' dispose o' his one-third without asking my advice an' consent, as th' promoter o' this deal, f'r th' reason that by his act he aids an' abets th' formation o' a trust, creates a monopoly, an' blocks th' wheels o' free trade; all of which is agin public policy an' don't go in no court o' law. McGuffey, give Scraggs back his money an' keep your interest. When any o' th' parties hereto can rig up a sale o' these two Celestials, it's his duty to let his shipmates in on th' same. He may exact a five per cent commission for his effort, if he wants t' be rotten mean, an' th' company has t' pay it t' him, but otherwise we all whacks up, share an' share alike, on profits an' losses."

"Right you are, Gib, my hearty," responded McGuffey. "Scraggs, we'll just call that sale off, f'r th' sake o' harmony. Here's your money. I ain't chokin' off Gibney's steam at no time, not if I know it."

"You infernal river rats," snarled Scraggs, "I'll—I'll—"

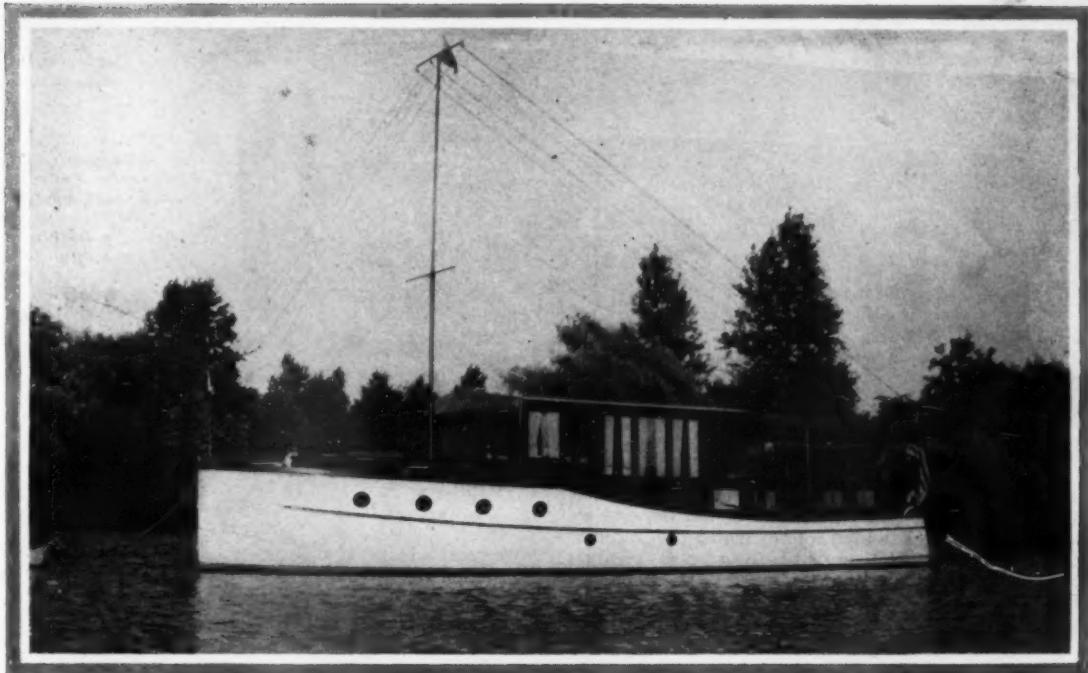
"Stow it," Mr. Gibney commanded. "I never did see the like o' you, Scraggs. You're all right an' good comp'ny right up until somebody declines to let you have your own

way—an' then, right off, you fly in a rage an' git abusive. I'm gettin' weary o' bein' ordered off your dirty little scow an' then bein' invited back agin. One o' these bright days, when you start pullin' for the fiftieth time the modern parable o' the Prodigal Son an' the Fatted Calf, I'm goin' to walk out o' the cast for keeps. Now, if I was you an' valued the services of a good navigatin' officer an' a good engineer, I'd just take a little run along the waterfront an' cool off. Somethin' tells me that if you stick around here argyin' with me you'll come to grief—which same is no idle fancy, you snipe."

Captain Scraggs hastened to take advantage of this invitation, for it stood him in hand to do so. His plans, due to Mr. Gibney's inexplicable obstinacy, had failed to mature and he was fearful that Gin Seng, after consulting with his tong, might return to the Maggie at any moment and ruin the deal by exposing it to Gibney and McGuffey; therefore Scraggs resolved to run up to 714 Dupont Street and warn Gin Seng to let the matter lie in abeyance for a couple of days, alleging as an excuse that he was being subjected, for some unknown reason, to police surveillance. Scraggs decided that after three days the presence of the two dead Chinamen aboard the Maggie would commence to wear on the Gibney nerves and the dead- (Continued on page 126)



Anton Otto Fischer, the famous illustrator whose clever paintings have done much to add to the pleasure of this series of stories. It is always MOROR BOATING'S policy to give its readers the best stories and illustrations that can be secured



A cruiser antenna installation adaptable to both transmitting and receiving, sections run forward and aft and are stayed with guy wires

RADIO

Through the Binoculars

Further Discussion of Up to the Minute Receiving Equipment for the Yachtsman, Describing a New Type of Set

By Jesse H. Jay

Advertising Manager, Great Lakes Boat Building Corporation

IN October MoToR BOATING in Radio Through the Binoculars a special type of tuned radio frequency principle was described, and in this article the discussion on radio frequency will be carried still further.

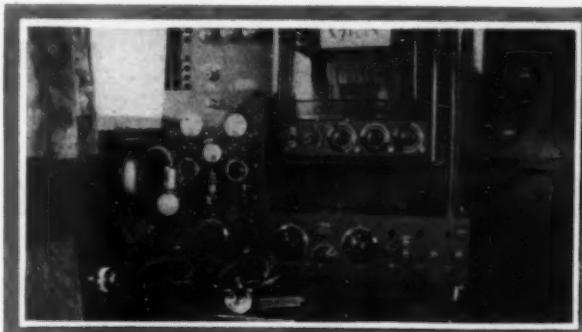
As pointed out before, tuned radio frequency lends itself ideally to the restricted conditions aboard small and moderate sized craft. The very principles of radio frequency amplification make it the logical choice for those wishing really long distance reception and undistorted signal strength. Of the different forms tuned radio frequency proves best, and it is this particular type which will again be the point of discussion.

The set I am about to describe has as a feature of first importance to yachtsmen a maximum efficiency point when used with an antenna about 30 feet long. There is not a cruiser but what can put up a 30 foot antenna consisting of one wire running fore and aft, so this point is all-important for any boat owner's consideration. Secondly, this very latest type of set is enormously sensitive and will build up a most feeble radiophone signal to great volume, which is not at all limited by the small antenna. Aside from its extreme long distance qualities,

it tunes extremely sharp, and along with this selectivity it is very simple of control. This new set is known as the radiodyne, and it is a very recent development in broadcasting receivers. It is due to its peculiar characteristics, which fitted so excellently to yachting needs, that it will be herein described.

The radiodyne receiver makes use of six tubes, the first of which comprises one stage of tuned frequency, and the second two tubes are used as two stages of aperiodic radio frequency amplification. The fourth tube is the detector, while the last two tubes comprise two stages of powerful audio frequency amplification.

It is in the first three stages of radio frequency amplification that this radiodyne receiver is radically different, for the first stage of tuned radio frequency is tuned to the exact frequency of the incoming signal, and the output of this stage is fed to two stages of aperiodic instead of tuned radio frequency amplification. Aperiodic stages is the term given to radio frequency stages which respond to any frequency which is fed to them. In other words, the second two radio frequency tubes in the radiodyne are entirely flexible and



A complete radiophone transmitting and receiving equipment installed in the after-cabin. The units are a Western Electric power amplifier, with the loudspeaker in the pilot house. The receiving set is a Grebe, which has proven entirely satisfactory



A radiodyne radio frequency receiver which is ultra-sensitive and selective and splendidly adapted to extreme long distance reception on board yachts

work in exact accordance to the tuning of the first tube. It is the first tube that really tunes the entire set, and we might say that it strikes the keynote to which this receiver so efficiently operates. Here we have three stages of radio frequency amplification with its multiplicity of controls, as against the simplified control of one master tuned radio frequency stage. The first tuned radio frequency tube of the radiodyne is the master stage. The next two stages of radio frequency, although specially transformer coupled, will amplify with a high ratio whatever the first tuned stage feeds them. Therefore, it will be seen that the controls are completely eliminated on the second two stages of radio frequency amplification. This leaves it possible to thoroughly tune the first stage without complicating the controls. The plate and the grid, respectively, are tuned by specially wound variable transformers with constantly variable coupling. These transformers are made with split windings and somewhat resemble a variometer.

Mounted between the variable radio frequency transformers is a variable compensating condenser. This acts as a balancing-out condenser for the antenna to equalize its capacity under varying fundamentals. When the radiodyne is first tuned with a given antenna, this compensating condenser is set at a point of maximum signal strength. Once adjusted this condenser seldom needs further adjustment.

This leaves the controls really to but two dials, those controlling the primary and secondary of the first stage of tuned radio frequency. There are three rheostats, one controlling the three radio frequency tubes, one the detector, and one the two stages of audio frequency. These rheostat adjustments are not critical beyond a certain point, and when once set, need no further adjustment. The six tubes may be of any standard type, but 201A or 301A tubes are preferable for best results.

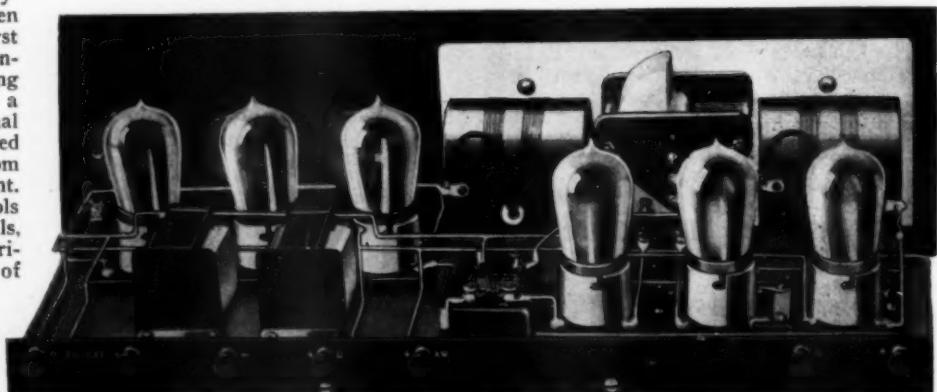
When using 201A or 301A Radiotron or Cunningham tubes, the radiodyne broadcast receiver draws a filament current of but one and one-fifth amperes. This current can be taken from three cells of the boat's thirty-two volt or twelve volt lighting storage batteries. When so wired, great care should be taken not to use the receiving set when the light plant or generator is charging the batteries, as this means six new tubes. Burning out six tubes is a greater test on self-control than golf.

With the radiodyne receiver the writer has used 30 feet of insulated wire as a balancing wire thrown in any fashion across the floor and picked up broadcasting stations all over the country. Picking up Los Angeles aboard a yacht on the East coast is no great feat for this ultra-sensitive receiver.

A great advantage in using radio frequency sets such as the radiodyne, Acmedyne, Grebe, and other similar types lies in their volume. Not only are they capable of extreme long distance reception, but the broadcast programs come in with such strength, that they will make loudspeakers talk up without a power amplifier.

There are a number of loud speakers on the market which are self contained units, requiring no batteries. Such units may be connected direct to receiving sets like those previously mentioned and are quite satisfactory when the signal strength is great. A signal must be extremely loud over the head phones before this type of loudspeaker will give the desired volume. To build a distant broadcasting station up to sufficient volume for such speakers, tuned radio together with audio frequency should be used.

A number of these various direct connected speakers use a Baldwin type C phone, which has proven to be a very practical loudspeaking unit. A few makes of loudspeakers use their own units, which are more or less patterned after



A rear view of the set above showing the simple and well-balanced layout. The three tubes to the right comprise the tuned radio frequency stage, and two stages of aperiodic radio frequency

head phones, but usually with larger diaphragms to eliminate distortion. Two prominent makes of loudspeakers using their own units are Western Electric and Magnavox, each of which operates on entirely different principles. The Western Electric loudspeaker is of a similar principle to that of the Baldwin phone, but is much more rugged in design and construction. Unlike the small Baldwin or similar sized units, the Western Electric speaker unit will handle very great volumes without distortion and will reproduce all the voice frequencies, from 200 to 3500 cycles with the utmost clarity. Even the horn of this loudspeaker is of careful and scientific design, being of such shape as to give the best amplifying and (Continued on page 122)

Adieu and Shadow H Built By Purdy Make Quick Trip to Southland In Spite of Ice and Snow

Two New Express Cruisers Reach Miami

Photographs by M. Rosenfeld



Adieu speeding across New York harbor on her way South

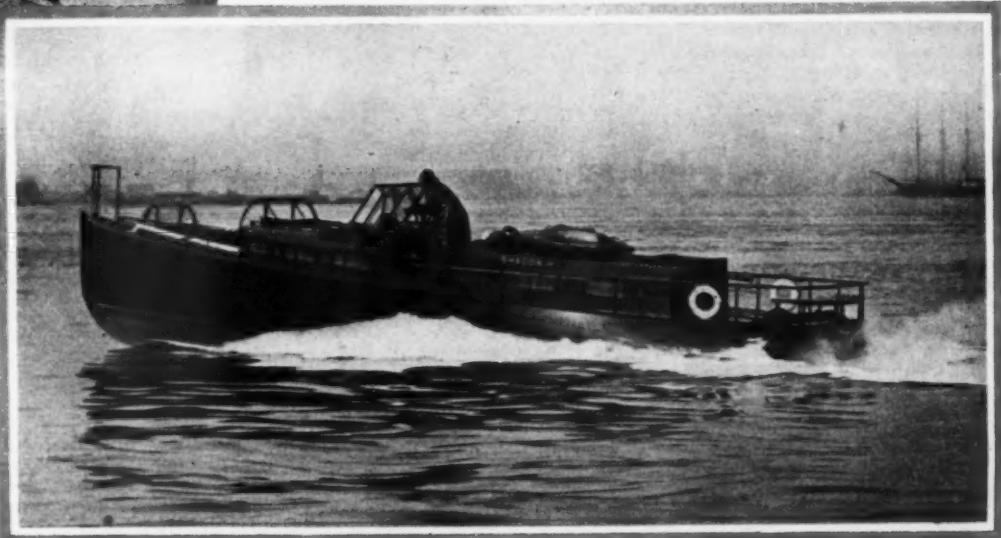
WEBB JAY of Chicago and Carl G. Fisher of New York, both winter residents of Miami and Miami Beach, Florida, build at least one new boat a season. This year Mr. Jay went into the lead with three craft already completed, and one still building for this winter's regatta at Miami.

The cruisers shown on this page, Adieu and Shadow H, are typical Purdy craft, designed and built by the Purdy Boat Company of Trenton, Mich. The hulls are identical in size and underwater characteristics, 46 feet in length, but vary in interior arrangements and power plant.

From the standpoint of seaworthiness as well as speed and engine reliability, both boats came up to the expectations of their owners in their long run to Florida. The 2,000-mile run was made in two weeks time.

Webb Jay, of Chicago and Miami, owner of Adieu and his Chow dog, Adieu and Shadow H recently ran from Trenton, Mich., to Miami, a distance of 2,000 miles in two weeks' time

A view of Shadow H at 30 miles an hour. Her power is two Detroit marine motors





The old Gas Engine and Power Company's plant way back in the days of the naptha launch and the steam yacht, now the Consolidated Shipbuilding Corporation, Morris Heights

Where The Industry Began

Many Years Ago The Corner Stone of The Motor Boat and Engine Industry Was Laid At Morris Heights Where The Present Consolidated Shipbuilding Corporation Had Its Beginning

By Robert Hall

NEARLY every successful industry can be traced back to an humble beginning. So too, with the motor boat industry, as we turn back the pages of history, we find its beginning on five hundred square feet of boggy-filled property, on the Harlem River at 131st Street and Brook Avenue, New York City. It was on this site in 1885 a group of men under the direction of Clement Gould, banded together and formed the Gas Engine & Power Company. The primary object of this organization was to design and build a pleasure boat to be known as a naptha launch, the first motor-propelled pleasure boat in the world, save steam. The formation of this company, historically speaking, established the first landmark in the development of an American industry, which today supplies the needs of nearly a million and a half boat users in the United States.

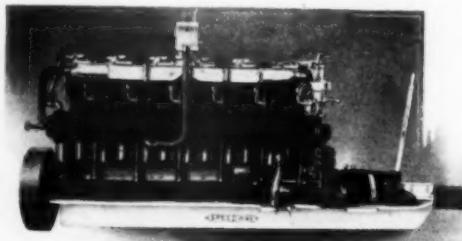
Little did those men realize as they formed this parent company some 38 years ago that they were laying the corner stone of a new industry. Not only has their faith in the product which they sought to manufacture, and did manufacture, been amplified by the success of the organization from the time of its inception down through the succeeding years, but that faith in the motor launch, seasoned with a little Yankee nerve, brought the Gas Engine & Power Company into being, and with its coming on shortly thereafter a thriving industry came with it. Of course, Rome was not built in a day. The knowledge to design a modern pleasure vessel as we know it is not to be gained in a few months of study, nor is the capability of an organization to properly build

and equip such a boat founded on a few years of experience.

Two years after their organization, these pioneers found themselves in the throes of a production program occasioned by an ever-increasing demand for their product. Fully aware of the space limitations of the 131st Street site, and the responsibility of fulfilling the demands of their patrons, property at the Morris Dock, now known as Morris Heights, was acquired, 12 acres in all, and in the fall of 1887 the old Gas Engine Company began operations anew in their new location.

During this period and up until the time the internal combustion engine was developed, naptha launches flourished. Shipments were being made to all parts of the world, and to all the prominent watering places of this country, both inland and along the coast. It is certainly interesting to note that a great many of the old naptha launch hulls are still being used, but have long since been repowered with an internal combustion engine. Volumes could be written on the old Naptha Launch Days, and while much valuable experience and data was compiled concerning the designing and building of a motor launch hull, the epoch of motor-boat building did not become universally known until the birth of the internal combustion engine.

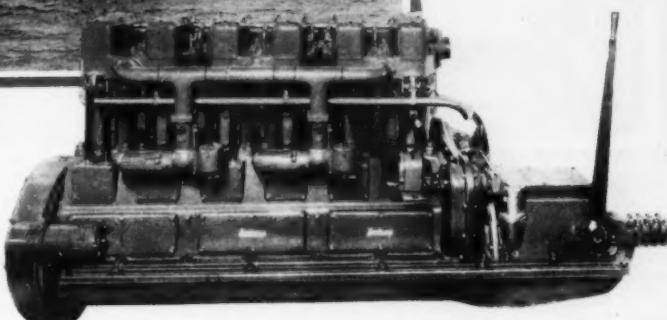
In about the year 1903, the Gas Engine & Power Company perfected a gasoline marine engine, of the internal combustion type. They recognized years before, the superiority of this type engine over the old naptha-burning type, but not until 1903 did they begin to build and market the gasoline engine bearing the trade mark, Speedway. From



An illustration of one of the earliest gas engines built at the present Consolidated Shipbuilding plant about 1903



The latest gasoline engine now being built by the Consolidated Shipbuilding Corporation is a six cylinder machine of 300 h.p. vastly improved over the original 1903 model



Among the recent products of this corporation are several light ships in service on the coast, of which this is a typical one

that time on marine engine builders came rapidly into the field, and today we have 175 of them in the United States.

As time went on the industry began to take shape, designers, shipyards and shipbuilders began operations wherever the opportunity permitted. Today we have approximately 3,275 boat builders and 125 marine architects and engineers.

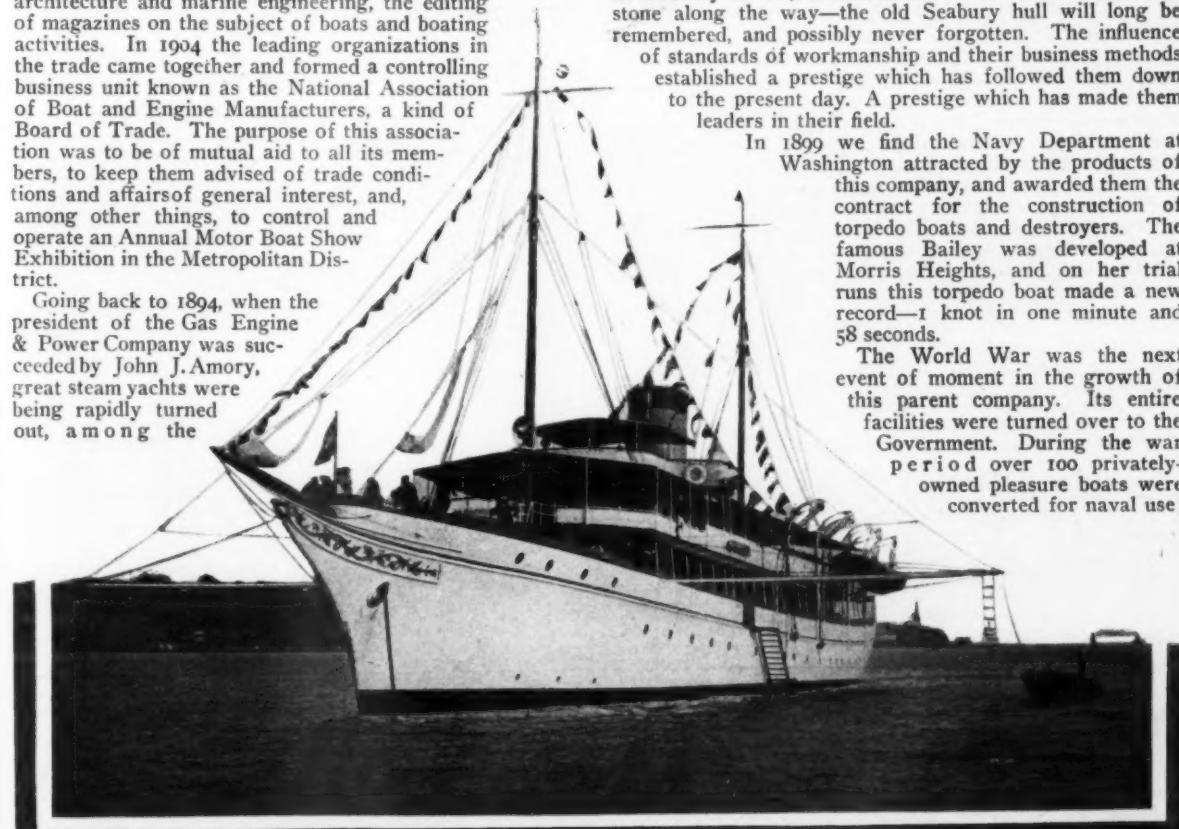
Competition naturally followed in the wake of the increasing demand for pleasure boats. This gave rise to the formation of schools and special classes for the instruction of students in naval architecture and marine engineering, the editing of magazines on the subject of boats and boating activities. In 1904 the leading organizations in the trade came together and formed a controlling business unit known as the National Association of Boat and Engine Manufacturers, a kind of Board of Trade. The purpose of this association was to be of mutual aid to all its members, to keep them advised of trade conditions and affairs of general interest, and, among other things, to control and operate an Annual Motor Boat Show Exhibition in the Metropolitan District.

Going back to 1894, when the president of the Gas Engine & Power Company was succeeded by John J. Amory, great steam yachts were being rapidly turned out, among the

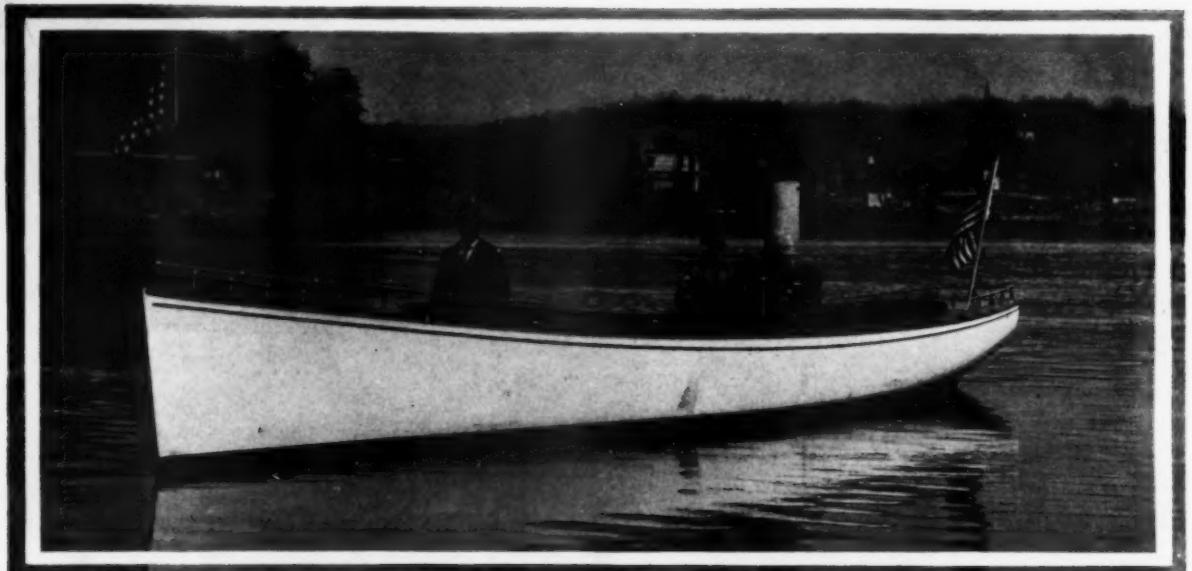
prominent ones, appear the Kanawha, Hiawatha, Vitesse, Vixen, Little Sovereign and Lyndonia. It was about this time that the Seabury Company operating at Nyack, N. Y., founded by Charles L. Seabury and William J. Parslow, merged with the Gas Engine & Power Company and Charles L. Seabury & Co., Consolidated. This was another mile stone along the way—the old Seabury hull will long be remembered, and possibly never forgotten. The influence of standards of workmanship and their business methods established a prestige which has followed them down to the present day. A prestige which has made them leaders in their field.

In 1899 we find the Navy Department at Washington attracted by the products of this company, and awarded them the contract for the construction of torpedo boats and destroyers. The famous Bailey was developed at Morris Heights, and on her trial runs this torpedo boat made a new record—1 knot in one minute and 58 seconds.

The World War was the next event of moment in the growth of this parent company. Its entire facilities were turned over to the Government. During the war period over 100 privately-owned pleasure boats were converted for naval use;



Among the most magnificent yachts built in the plant are Lyndonia shown here, the big yacht belonging to Cyrus H. K. Curtis



One of the earliest types of the old Naphtha launch, built some thirty-eight years ago, and the fussy little engines of which are still remembered by the old timers

50 seaplanes were built and delivered; four 1,000-ton mine sweepers, and many harbor tugs.

The increased activity caused by the war work naturally resulted in the expanding of various departments and the addition of new and more modern machinery.

As we all know the war closed at the end of 1918 and in 1919 we find them turning their attention back to the construction of pleasure vessels and their propelling machinery. It was in this year that the corporate name was changed to the Consolidated Shipbuilding Corporation. The purpose of this was to avoid the use of the long and burdensome name of The Gas Engine & Power Company, & Charles L. Seabury & Co., Consolidated, which gave rise to many abbreviations and misleading names. This change in title did not effect the personnel of the company. It remained the same. John J. Amory, President; William J. Parslow, Vice-President; Bruce Scrimgeour, Secretary and General Manager; Clement G. Amory, Treasurer.

From this period on the majority of work done at the Consolidated yard has been for private individuals, except for two light ships and lighthouse tenders built for the Lighthouse Department at Washington, D. C.

Among the pleasure boats which have attained prominence in the yacht fraternity are Cyrus H. K. Curtis' steam

yacht Lyndonia; S. Parker Bremer's Velthra; E. C. Crossett's Betty R; H. L. Judd's Florence J II; L. M. Wainwright's Klahanee; A. Y. Gowen's Speejack; Thomas M. Howell's Pauline M; Julius Fleischmann's Whirlwind; Dr. H. N. Torrey's Tamarack IV; Grove E. Warner's Alice W; H. N. Slater's Scaramouche.

Thus from the beginning in the building of the small naphtha launch we have traced the progress of the Consolidated Shipbuilding Corporation down to the present day, and have noted some of their leading achievements. During the past thirty-five years the Consolidated has produced over three thousand boats—they are also the designers and builders of the world-famed Speedway Marine Gasoline Engines.

The successful career of the Consolidated Company speaks of a steadfastness of purpose, and an ideal. To produce a guaranteed product, of the very best workmanship and material with an organization behind it made up of men of sterling character and whose ambitions are to render service. Upon these concepts in 1885 the corner stone of this organization was laid, and during all the intervening years, the vicissitudes of business and the several transitions through which it has passed, it has progressed and flourished. And, today, The House of Consolidated is the leader in the designing and building of wonder yachts and smaller pleasure craft of many kinds.

One of the recent products is the fleet gasoline engine yacht Tamarack, perhaps one of the finest examples of the modern high speed boat



Faster and Faster They Go

Fine Boats in All Parts of the Country Using Hall-Scott Marine Engines Demonstrate Their Remarkable Ability

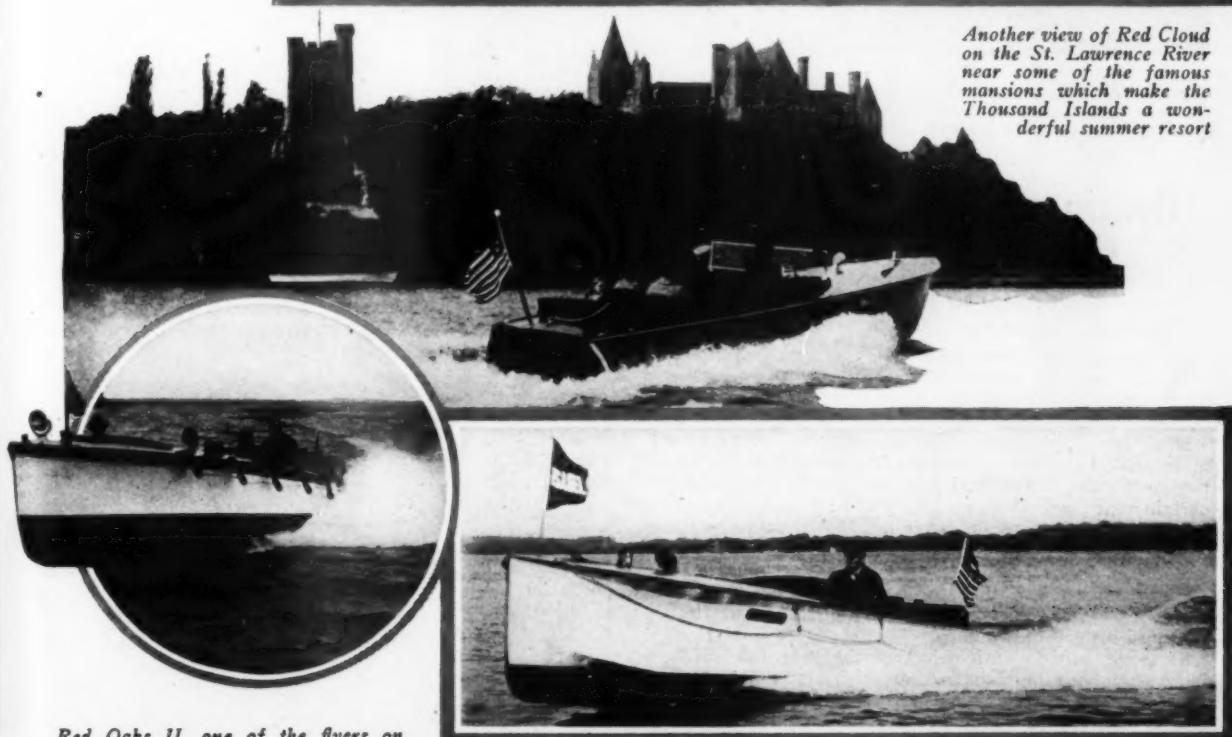


Red Cloud is a typical luxurious round bottom runabout used at the Thousand Islands by O. J. Hamlin. She was designed and built by Hutchinson Brothers, and is 36 feet long. She is able to do 27 miles per hour with her 4 cylinder Hall-Scott marine engine

Nutmeg is another 30-mile St. Lawrence River runabout de luxe. She is owned by A. C. Stafford of New York, and is 28 feet in length. She has also been built by Hutchinson Brothers and equipped with a 4 cylinder Hall-Scott marine engine



Another view of Red Cloud on the St. Lawrence River near some of the famous mansions which make the Thousand Islands a wonderful summer resort



Red Oaks II, one of the flyers on Lake Minnetonka. She was designed and built by the Ramaley Boat Company for T. B. Janney of Minneapolis. She has a 200 h.p., 6 cylinder engine, and does 42 miles

Isabel is owned by the University of Wisconsin, and is in charge of Captain Isabell. She is used as a life saving coach boat and has saved several lives. She was designed by Wm. H. Hand, Jr., and a Hall-Scott four cylinder engine of 125 h.p. was selected on account of its speed and perfect control



Guy W. Vaughan, now associated with Charles Cory & Sons and W. C. Morehead, President of the enlarged Great Lakes Boat Building Corporation

Boating Restricted by Heavy Taxation

By John J. Amory

President, Consolidated Shipbuilding Corporation

AS a medium of convenience, as well as a source of healthful recreation—yachting, with special reference to that part represented by the motor boat, is fast becoming more and more popular through that qualification which, properly termed, is a necessity. Economists are predicting more settled and better business conditions for this country in the coming twelve months. With desirable progress in that direction, it is reasonably certain that people will go into yachting with less compunction about the cost, if not with more enthusiasm.

The motor boat, affording as it does an expeditious as well as a pleasant method for express service between country house and office in town, and its particular adaptability for a means of healthful recreation in leisure hours or days of vacationing, give it a quality of usefulness not to be denied—a need instead of a luxury.

It seems safe to anticipate that the year 1924 will show a very large increase in both the number of motor boats as well as a great variety in styles—and of the larger or express cruiser type, a preponderance. There is a forceful appeal in the utilitarian of the latter for express service, as the name implies.

The motor boat has reached a stage of development where a fair comparison may be made with the history of the automobile. The car, at the beginning so essentially a device for pleasure, now so distinctly not only



Commodore William Scripps, President of the Scripps Motor Company, and donor of the cruiser racing trophy which bears his name

Forecasting

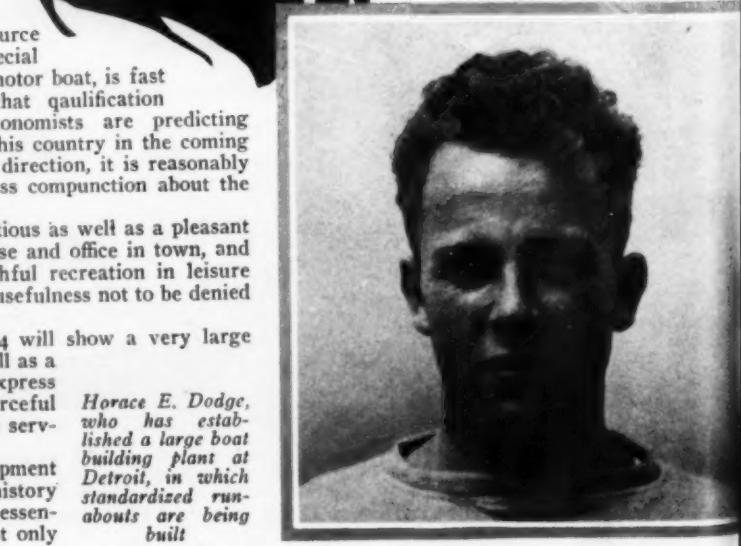
Bright Visions of the Prosperity Boat and Engine Industry Reflect

a convenience but a necessity. Perhaps, in these days, really more of a factor for business than for pleasure. The motor boat, having the same qualifications, has likewise become useful for both trade and recreation, the natural conditions providing the noticeable advantage of broader and uncrowded expanses for use—and differs from the car in the matter of complete avoidance of the disagreeable dust clouds on the crowded roads and the penetrating odors of burned gasoline and oil.

Modern and improved mechanical devices have satisfactorily disposed of the past uncertainties in the operation of a motor boat. Simplification of engineering problems has eliminated the bugbear of technical skill in management and has developed the amateur boatmen into expert navigators and well qualified engineers. Under such conditions, why indeed shall not the motor boat progress each year more and more toward the goal of perfect popularity?

Everyone at all familiar with this subject appreciates the handicap which has been placed on this form of recreation effected by a means of taxation which has indeed been burdensome. Relief from this unnecessary and uncalled for restriction has been long looked for. A restriction which has recently prevented many from enjoying the sport, lessened their opportunities for becoming competent in navigation, and thus depriving them of a valuable qualification which is of national importance.

It follows by natural sequence that a regulation of this character



Horace E. Dodge, who has established a large boat building plant at Detroit, in which standardized runabouts are being built

The New Year

*Which Will Smile on The
Year 1924
as is Seen in the Remark of Its Leaders*

has held up progress both in the quantity of boats built as well as the development of the industry. What is still more pertinent to this situation is the well-known fact that the return to the Government in the form of tax revenue is so small as to make its imposition practically valueless. It is sincerely hoped that the coming Congress will effect a tax revision eliminating this part of the act. While the progressing popularity is not dependent on that factor, motor boating during the coming year will see many notable additions to the present fleet.

Interest Growing in Out-Door Life

By W. C. Morehead
President, Great Lakes Boat Building Corp.

UNLESS unforeseen developments should occur, which can not possibly be anticipated at this time, the pleasure boat industry should have a very good year indeed in 1924. Fundamentally the domestic financial and economic conditions are sound, and this should result in large potential purchasing power for boats for both utility and pleasure. An observation of the times shows a distinct trend towards increase of interest in boats. Without question, all of America is giving more attention to recreation in the outdoors. The last few years have brought about a tremendous change in the life of America. Among other things, the automobile is responsible for increased interest in the outdoors. The propaganda with respect to health and welfare of the people has had an important effect.

Henry R. Sutphen, Vice-President of the Elco Works, one of the principal exponents of standard-ized boat production



C. G. Amory, Sr. and Jr., who are at the head of the Consolidated Shipbuilding Corporation



J. G. Vincent, Vice-President of the Packard Motor Car Company, in his driving clothes at the Detroit races



The use of automobiles has now increased to the point where a car can no longer be considered as a pleasure vehicle for use on Saturdays and Sundays, especially in the larger communities. Inasmuch as the public has become accustomed to the pleasures to be obtained from outdoor life, it is necessary to find some substitute for the motor car. While many are turning to golf, there is a limit as to the number of persons who can be accommodated on a course, and therefore this field of recreation, with purely physical limitations, is not available to the entire public. Moreover,



Wm. Bruns, the head of the New York agency and rebuilt engine dealers, Bruns Kimball & Company



William E. Gibb, now Sales Manager for Joseph Van Blerck, and J. B. Farr, President of the Kermath Motor Company

ever before. More satisfactory power plants are available than ever known in previous years. The buyer knows today that he can purchase a boat that will be satisfactory and that will represent real value for the money.

The War had a very important bearing on the interest in boating. The training which thousands of young men received in the Navy instilled in them a love of the water, and this manifests itself in the desire to own boats.

Standardization has done much for the industry and will do a great deal more in the future. It is only through quantity production that costs can be materially lowered in any business. The men engaged in the pleasure boat industry will give more attention in 1924 to this problem than ever before.

The cumulative effect of sound economic conditions, a

there is a very pronounced trait of the American people that will manifest itself in the demand for boats, and that is the desire to be moving and to go from place to place. The motor car has taken care of this impulse heretofore and, in fact, has stimulated it; but now that this avenue is cut off it would appear to be only logical that a boat should be substituted therefor.

There is another important reason why there is an increasing demand for boats, and that is because the manufacturers today have made tremendous improvements in their product in point of performance and comfort. Better boats are being built today than

growing interest in outdoor life, the love of the water already installed in thousands of young men who served in the Navy during the War, will unquestionably result in a substantial demand for boats in the year ahead.

The Day of the High Speed Engine Is Coming Fast

By J. G. Vincent

Vice-President of Engineering, Packard Motor Car Company

THE day of the heavy, slow speed marine motor for anything but heavy, slowly moving boats seems to be nearing the end, if it is not actually already here. In place of power plants of this old type have come the more economical light, high speed engines.

Actual performance has proven that the new marine motor has the reliability, longevity and economy to make it the ideal power plant for the fast cruiser as well as the speed boat. It is a motor of this type that holds the record for the longest distance ever traveled by any kind of a boat during 24 hours, and any number of power plants similar in character in the last two years have been driving fast cruisers as well as speed boats with the maximum of consistency and reliability in waters located in all parts of the country.

In big heavy boats of comparatively low speed, where a large amount of ballast must be carried anyway, the heavy motor probably will continue to hold its own, but it is extremely doubtful if it will be able to show any greater reliability than the lighter power plant.

I believe that the development of the new type of marine motor has had much to do with the winning of a great host of new men to yachting. The fast, comfortable cruiser has won a great number of men who never before were interested in water sports, and the speedy gentleman's runabout and day cruiser have appealed to a great many as a means

of traveling from their homes to business in the least possible time and in the greatest comfort.

Development of the newer type marine motor has been aimed largely toward reliability, and in attaining reliability there has come of necessity a maximum amount of accessibility. Nearly any kind of machinery needs simple little adjustments more or less frequently to guard against a lessening of reliability, and accessibility is of paramount importance for such adjustments.

To obtain minimum weight, also it was necessary to produce compact engines, and this compactness is a feature which is making a big appeal to the yachtsman. Because of it, it is possible now to have a motor of great power that utilizes only a comparatively small amount of space. As a result a far greater amount of room is made available in the cabins of

cruisers and in the cockpits of runabouts, adding greatly to the comfort of passengers.

The demonstrated success of the light high speed marine power plants and the present trend indicate that development of the future will be aimed at refinement of the present type motors, with more thought being given all the time to accessibility, reliability, further elimination of vibration and compactness.

Traffic congestion on the highways in all parts of the country is driving people more and more to seek their recreation on the water and to travel more and more, both to their business and their golf and other play, by water routes. As a result motor boating is growing more popular steadily. Development of motors has removed many of the former objections of water travel. This development is bringing the fast cruiser and fast runabout closer to the automobile almost daily in ease of handling, economy and freedom from disagreeable mechanical troubles.

A Motor Boat to Take You Anywhere

By H. R. Sutphen

President Submarine Boat Corporation

To anyone who has followed the development of the motor boat industry and seen the marked increase in public interest during the past two years, it is evident that the year 1924 holds great possibilities for the progressive builder.

The great American public is beginning to know motor boats and realize that with our unequalled stretches of protected navigable waterways motor boating offers the most interesting, healthful and economical of sports. While there has been a noticeable and steady increase in the use of motor boats for commercial purposes, work boats, fishing boats, etc., there has been a tremendous demand for pleasure boats. Mr. Average Man likes to go somewhere and have a good time, and the automobile has, for many years, satisfied this desire; but now that everyone has an automobile there is very little good time for anyone on our crowded holiday highways, and it is only natural that Mr. Average Man should investigate the possibilities of motor boating. His attention is being attracted by the practical craft which he sees on every bay and stream, his friends tell him about their boats, our fine motor boating magazines and articles in the sporting periodicals rouse his interest and offer suggestions, and the motor boat shows give thousands an opportunity to compare the various types offered by our leading manufacturers.

And what kind of a motor boat will Mr. Average Man buy in 1924? It may be that a simple row-boat with an outboard motor will serve him at his summer camp, or a fast runabout furnish him exhilarating day trips on a neighboring lake or river, but the chances are that he will want a boat with which he can make week-end cruises in safety and comfort, and perhaps make an extended trip during his vacation. There must be accommodation and conveniences for the whole family (no more crowded hotels for him!), and the power plant must be a modern, quiet, clean and reliable one. For Mr. Average Man is motor wise, his automobile experience has taught him what he may expect and demand in mechanical performance.

While some enthusiasts will, no doubt, design and build boats according to their individual ideas, the great demand will, undoubtedly, be for tried and tested types. The designs of the most successful small cruisers on the market today are really the result of expensive engineering and systematic experimental development, and the final happy combination of hardy construction, convenient arrangement and economical power could hardly be hoped for by the amateur. The writer has, for many years, been an advocate of applying the principles of standardization and mass production in the manufacture of motor boats, and resulting values

which such methods have made possible will certainly be a great attraction to purchasers in 1924. Mr. Average Man is asking not only "What will the boat cost?" He says, "Let me see it," "Can I get service?" "Is it economical to operate and maintain?" and "What will be the resale value?" almost all in one breath, and it will be only the builder who has standardized, tested boats ready for delivery who can satisfactorily meet his demands.

In the past it would seem that the designers and builders of motor boats had conspired to make it as difficult as possible for anyone to buy a motor boat. An infinite variety of designs were offered for consideration which had only novelty to recommend them. The reassurance that this is almost like one we built two years ago did not carry conviction. A dozen types of engines were listed as possibilities to add to the confusion. The builder's ideas of costs and time of delivery were necessarily nebulous and



H. W. Schnetsky, President of the Wisconsin Motor Company



A. J. Utz, Sales Manager for the Hall-Scott Motor Car Company and an enthusiastic boatman

often disappointing. It was only the experienced yachtsman who would dare such an adventure, but today all that is different. Manufacturers have specialized on types to meet any reasonable requirements. The boat is already built and tested, the engine is part of the boat, not an accessory, the equipment definitely listed and the total cost fixed. Here is something to inspire confidence; it is a finished product—a motor boat which will take Mr. Average Man anywhere and let him have the best time he has ever had. Realization on the part of the public of the pleasure of motor boating and standardization on the part of the manufacturer will combine to make history in motor boating for 1924.

Put the Marine Industry On a Business Basis

By H. W. Schnetzky

President, Wisconsin Motor Manufacturing Co.

THE year of 1924 will mark a milestone in the marine craft and engine business. A determined plan to put these industries on a business basis is in the mind of the progressive and far-sighted element interested. Every boat builder and every manufacturer of units entering into the completed boat realizes that there must be concentration and simplification, that construction must be put on a production basis. As a consequence, builders are standardizing on cruisers and runabouts, rivaling in improved designs, details of construction and quality, with a tendency to put excellent craft, powered with high grade engines, in the hands of the public at prices which will make boating more popular, consequently bringing about more sales. Instead of eking out a mere existence, finding their reward in artistic appreciation of their handiwork and hibernating in winter, boat builders are now drawing capital, sensitive to opportunities, to their support, enabling them to make economic purchases of materials on a cash basis, increase their turnover, extend their field of operations and popularize motor boating far beyond their local confines.

C. A. Criqui, president of the Sterling Engine Company, is an enthusiastic supporter of fast boat racing



Eugene A. Riotte,
President of the
Standard Motor Construc-
tion Motor Co.,
at his desk in the Jersey
City plant

With the vast extent of the shore lines of this continent and that of our northern and southern neighbors, and with thousands of lakes attracting people from all walks of life as a playground, it does not take much vision to see the wonderful opportunities for the marine industry.

The proper design and construction of the marine engines are a big factor in the proper development of the entire marine field.

The modern methods of manufacture developed in the automobile industry will also be applied to marine engines. Progressive machining of the various parts is now possible in well equipped shops and progressive track assembly of the complete motors is a natural consequence, which the expansion of the industry is bringing about. Neatness and compactness of design and the enclosing of all working parts by oil-tight construction will be necessary features resulting in cleanliness in engine rooms or engine compartments. The development will embrace additional features conducive to efficiency and smoothness of operation, such as improved manifolding and carburation, thermostatic control of water jacket temperatures, etc.

Smaller cylinder bores, with higher piston speeds, and the resulting greater efficiencies, which have revolutionized automobile engine practice will be reflected in the marine field also. The accurate balancing of reciprocating as well as rotating parts which modern equipment has already made commercially possible in automotive work, need only be transferred to the marine field to make available the economy resulting from higher motor speeds.

Let us all put our shoulder to the wheel in order to put the marine industry on a real business basis which will redound in giving the public real motor boats properly powered, and so popularize boating that all of us will benefit by the increased business resulting from these policies. (Continued on page 266)





Wilbur Young sails his Bear Cat on a dusty day on Long Island Sound

Speed Makes *The Spray Fly*

The Manufacturers of The Popular Bear Cat Runabouts Have Added to Their Completeness and Convenience for The Coming Year 1924

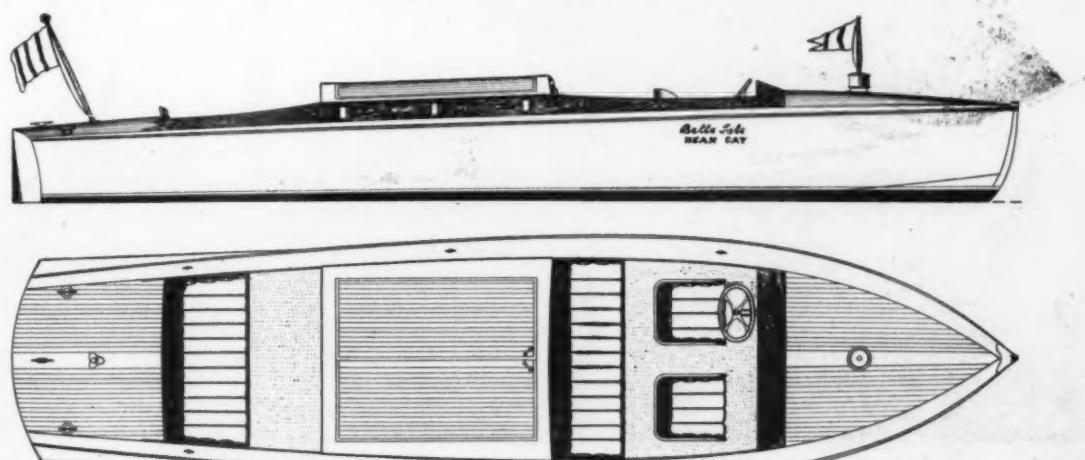
Of more than passing interest is the announcement made by the Belle Isle Boat & Engine Co. of its new and improved 1924 model Bearcat, which will make its formal bow at the National Motor Boat Show in New York in January. The model has new features which unquestionably make it the last word in the runabout field.

A thing of real significance in this new model is that there has been no change made in either the hull design or the power plant, both of which have been proved beyond improvement by four years of rigid test and trial. For four seasons the Belle Isle Bearcat, which always has been equipped with the Hall-Scott Marine Motor, has set a pace in the runabout field that has defied duplication. But the

desire of the manufacturers is, ever to add to its completeness and convenience. It is these changes that stamp the 1924 edition of the Bearcat.

The Bearcat's builders, the Belle Isle Boat & Engine Co., will have a complete exhibit at the show. There will be on exhibition two Bearcats, one with the four-cylinder Hall-Scott motor installed and the other with a six-cylinder engine of the same make.

The company also has sent several Bearcats to Florida for the opening of the season there, so that they can give immediate delivery, thus eliminating the wait for rail shipment which often delays the arrival of a boat until the season is half over.



Profile and arrangement plan of the 1924 edition of the Bell Isle Bear Cat

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Big Boats With Sturdy Engines

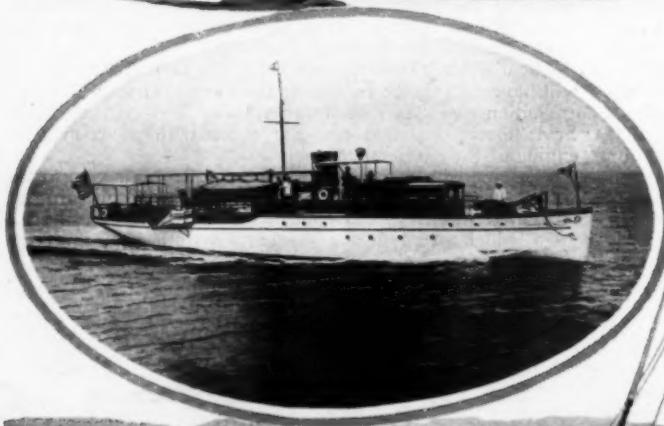
Auxiliary Sailing Craft of Large Size Powered With Heavy Duty Engines

HERE is an increasing tendency among the owners of large sailing craft to fit them with some form of auxiliary power, and when the boats are large and substantial the choice of power plant generally resolves itself into the heavier and rugged heavy duty engines of the gasoline type. For obvious reasons the heavy oil engine in smaller units has not yet advanced sufficiently far to make it a desirable plant for pleasure craft purposes, particularly where it is not used continuously. Where an engine is used only at intervals, the fuel consumption throughout the year's time is not sufficient to warrant the extra cost of the heavy oil engine, compared to the cost of the gasoline engine.

Our illustrations show several boats of large size which are fitted with heavy duty Standard gasoline engines, built in Jersey City. The auxiliary schooner yacht Mary Rose, at the left, was completed from designs by John Alden for Harold W. Brooks. Her power plant is a four-cylinder 24 h.p. Standard engine, and she draws eight feet of water with an overall length of 62 feet. The 90-foot twin screw yacht Apache is fitted with two 90 h.p. Standards.



The auxiliary schooner yacht Mary Rose recently completed for Harold W. Brooks and powered with a 24 h.p. 4 cyl. Standard engine



The 90-foot twin-screw motor yacht Apache owned by H. Windsor of Chicago. She has recently been re-powered with two 90 h.p. Standard engines



An ocean going cruiser is Acushla II. Her owner, Wendel Andreas, cruises from ten to twelve thousand miles per year far from the sight of land and under power most of the time

Evolution of the Surface Propeller

Development of the Displacement Boat Driven by Surface Propellers From a Small Open Boat to the 64-Foot Houseboat

By Albert Hickman

THE boat owner familiar with the high-speed type Sea Sled boat ordinarily overlooks the fact that the first surface propeller experiments were made not with high speed types but with low speed displacement craft.

The accompanying photographs illustrate in a general way the development of the displacement boat series driven by surface propellers from the first surface propeller Viper up to Mr. Crouch's newest houseboat.

Viper II with surface propellers was not strictly a low speed boat but a 20-footer making 19 m.p.h. Later, displacement boats were built of much lower speed and the operation of the surface propellers differed very largely from that with which we are familiar in the high speed Sea Sled hulls. The surface propeller in the high speed boats is designed to run at relatively high slip at low revolutions, the slip decreasing rapidly with increasing speed, but in the old displacement type hulls driven by surface propellers the first turn of the

type, the propulsive efficiencies being very high, the draught of water being little over one-half that required for the



Viper II, the first displacement boat to be driven by the surface type propeller



Viper IV, an improvement on the earlier type, a V-bottom runabout also driven by surface propellers

submerged screw propeller at the same power and revolutions, the shafts being inboard, the propellers not being liable to damage by submerged obstructions and the boat being capable of running through any growth of weeds, eel grass or hyacinth without the propellers being fouled in any way. The Viper IV type was a boat of V-bottom design with the propeller shafts well raised above the bottom of the transom, as shown in one of the photographs, and this was followed by various V-bottom boats culminating in size in a 50-foot river type boat driven by surface propellers, the total draught of this boat being 19 inches. This boat is illustrated as well. In the course of the surface propeller develop-

propeller drove the boat ahead rapidly and the slip was relatively low at all low speeds.

The dipping propeller with non-regulated dip had been suggested and even patented almost a hundred years before that time, but in the course of our V-bottom displacement boat experiments we found that wherever the dipping propeller was operated without regulation of the dip we immediately ran into trouble from changing submergence resulting in alternate overloading and underloading of the engines. Where we used the dipping propeller with regulated dip, however—the surface propeller—this trouble was immediately done away with and upon the surface propeller we depended for the success in propulsion in both our Viper IV type boats, V-bottom, and our Sea Sled—inverted V-bottom—hulls. The surface propeller presents as many advantages in the low speed type as in the higher speed



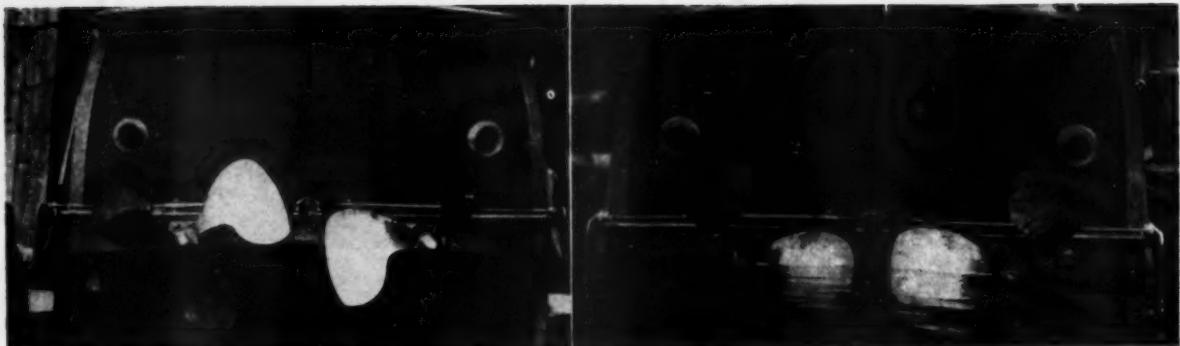
A close-up of the stern of Viper IV, showing the surface propellers and rudders as they were installed

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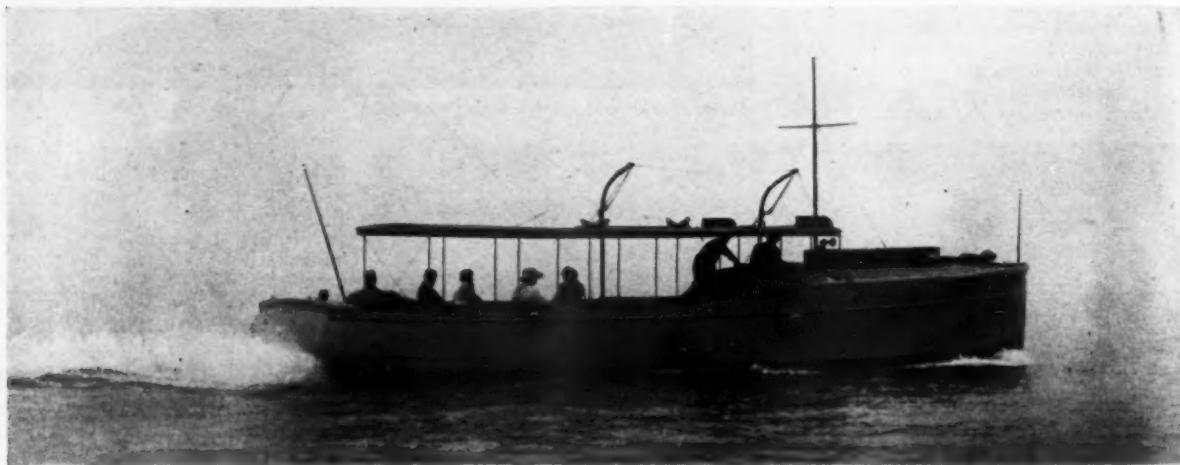


Stern view of slow speed surface propellers taken with the boat out of the water

The same boat afloat showing the normal submergence of the propellers with the boat at rest

ment, propellers of special design were produced which were found to be efficient at low speeds. These are shown in the photographs also, one of the pictures showing the propellers at normal submergence with the boat at rest. This type of propeller is of interest as being the basis for the design to be supplied for the houseboat, of which the general elevation is shown.

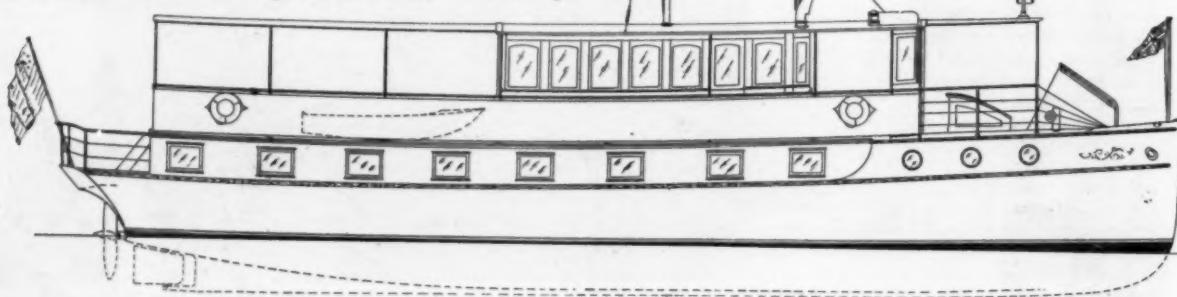
grade, medium duty motors placed far aft and with crankshafts athwartship, driving the surface propellers through worms, giving large reduction from engine speed to propeller speed, engine controls to be led to pilot house. The maneuvering ability of twin surface propellers is greatly superior to that of twin screw submerged propellers. The boat can be turned in its own length and can be maneuvered



A larger type surface propeller driven river boat capable of a speed of 12 miles and 50 feet long

The problem of satisfactory propulsion for houseboats has always been a serious one. The propulsion system must have a good overall efficiency when run in the open sea, be free from vibration and, at the same time, be able to operate in shoal and weed-grown waters without liability to constant damage from shoals and snags. The surface propeller with its inboard shafting is ideal for this all-around service. In the development of this houseboat, after the adoption of surface propellers Mr. Crouch's second consideration was the elimination of the heavy and expensive power plant used in many of the vessels of this class and it was finally decided to adopt in the design an installation of small high

directly sideways in docking, while the towing ability is superior to that of any shoal draught submerged propeller job. Taken all in all, the surface propeller system with geared down engine installation seems to present so many advantages that we believe this system must ultimately be widely adopted. An item worth considering is the saving in space resulting in this installation.



The latest surface propeller driven craft is a 64-foot house boat designed by George Crouch for the Sea Sied Company

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Polly Lee is a 65-foot cruiser with graceful and trim lines and a high speed of 25 miles

POLLY LEE, A Proud Craft

When Yachtsmen Think of the South They Fancy Commodious Boats—Long Cruises and Comfortable Accommodations

NOW is the time when yachtsmen's thoughts are turning southward. They are thinking in terms of commodious craft. For long cruising, comfort is desired as much as speed. A boat which meets every demand has just been designed and built by the Great Lakes Boat Building Corporation for Lee Rosenberg of New York. This boat is 65 feet in length, with a beam of 12½ feet. Polly Lee, as she is called, is a striking example of grace, with accommodations almost equivalent to a large, roomy house boat, and with a speed of more than 25 miles when desired. This boat is splendidly adapted to a long cruising radius, where the speed of 18 to 20 miles may be maintained indefinitely. Distant southern ports will not seem so far away when undertaken in a craft of this type.

One of the features of the boat is its unusually complete equipment. In the engine room, as is fitting in a boat of this kind, full head room has been provided, and the two 8-cylinder Sterling engines are accessible from every side. Water-tight bulkheads separate the engine room from the remainder of the boat as is usual in Great Lakes construction. Auxiliary equipment includes a 2-k.w. Universal set, feeding a 175 ampere-hour 32-volt Westinghouse battery. Electric pumps for water, gasoline transfer, etc., and other purposes are provided.

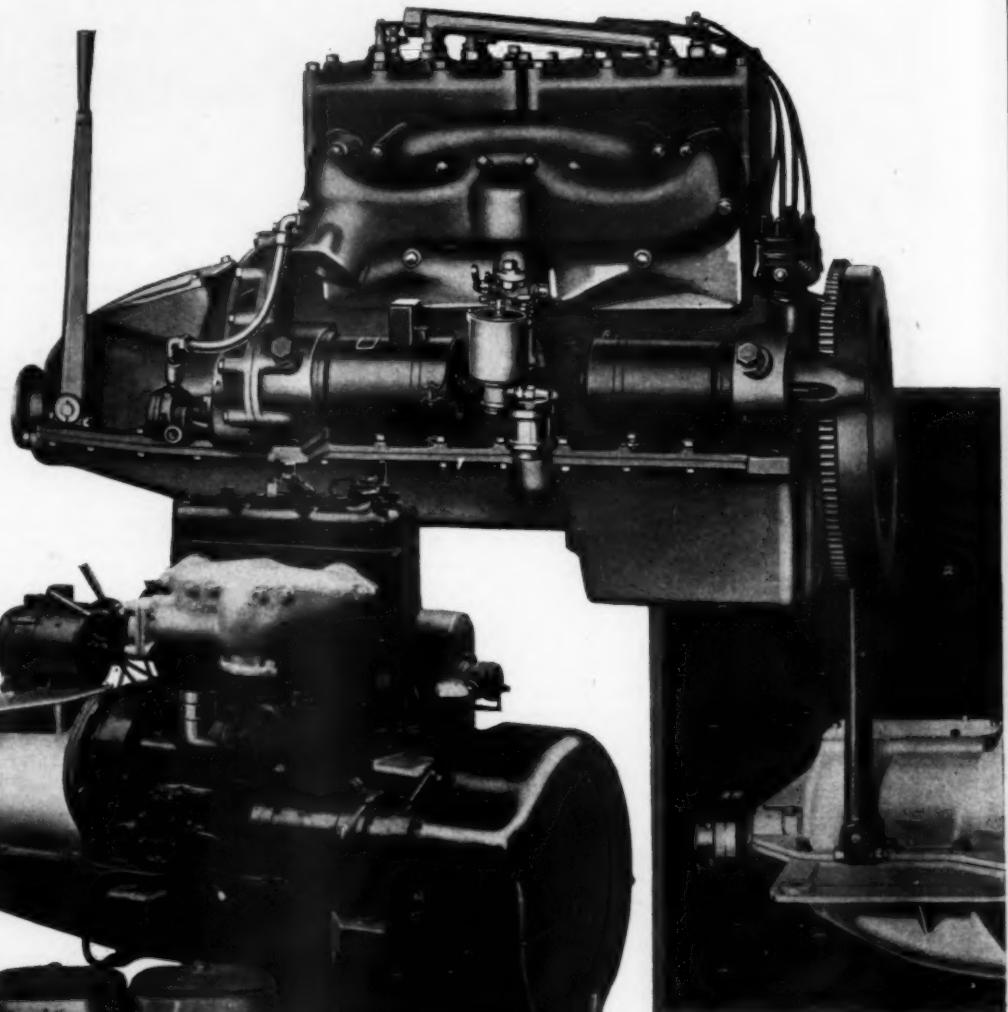
All controls are carried to the bridge deck for one-man operation, and in the ample space provided a large party of guests can be accommodated, fully protected by the glass enclosure.



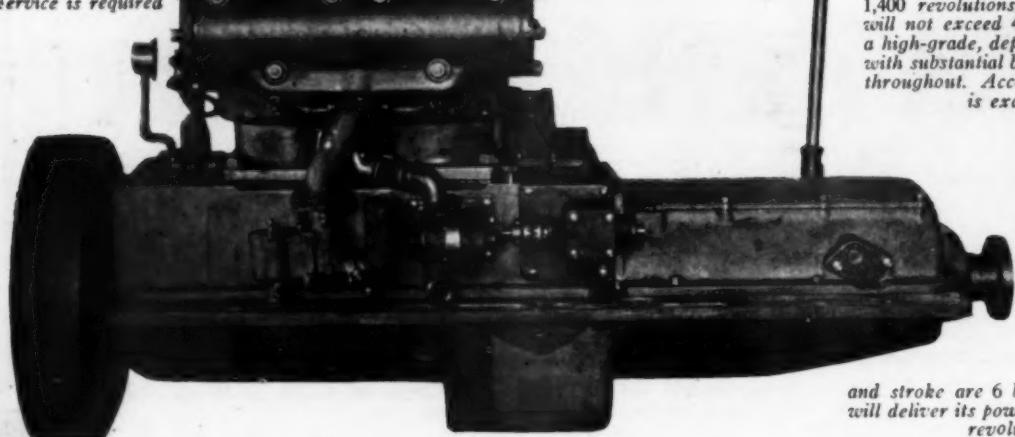
The two 8 cylinder Sterling engines are controlled entirely from the bridge where the operation of the boat is in the hands of one man

Some Engines at the

A remarkable power plant is the Scripps Model F4 marine engine. This machine is built in two types, one delivering up to 40 h.p. at medium speeds, while a high-speed model will produce up to 60 h.p. Its bore and stroke are $3\frac{1}{4}$ by 5 inches and its weight is only 550 pounds. This machine is in production and is a marvel of power and efficiency.



A smaller model of the Scripps is the D2, made in two cylinders with a bore of $4\frac{1}{4}$ and a stroke of 6 inches. This machine is designed primarily for boats using a moderate amount of power, where heavy duty service is required.

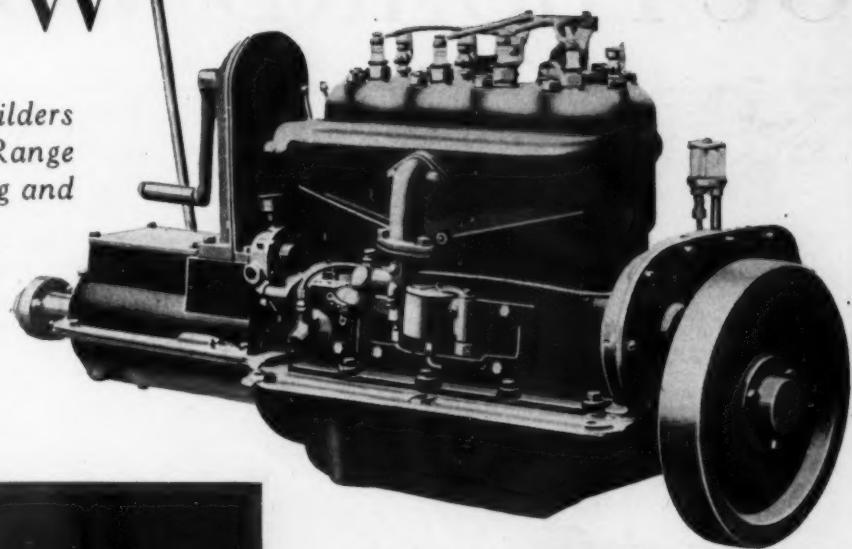


The model Z Gray engine is a four-cylinder unit delivering up to 18 h.p. on a $3\frac{1}{2}$ -inch bore and 4-inch stroke. It will turn up to 1,400 revolutions, and its weight will not exceed 400 pounds. It is a high-grade, dependable machine, with substantial bearings and parts throughout. Accessibility of parts is excellent.

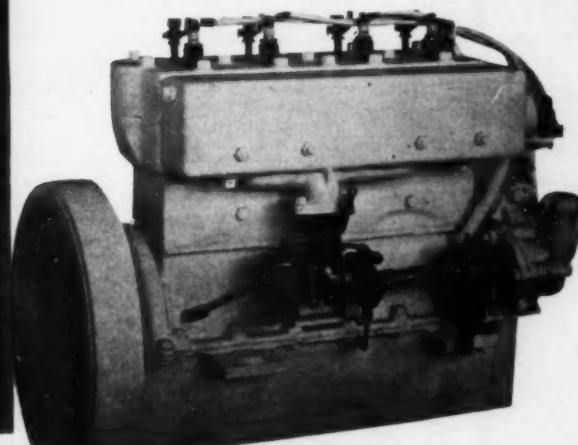
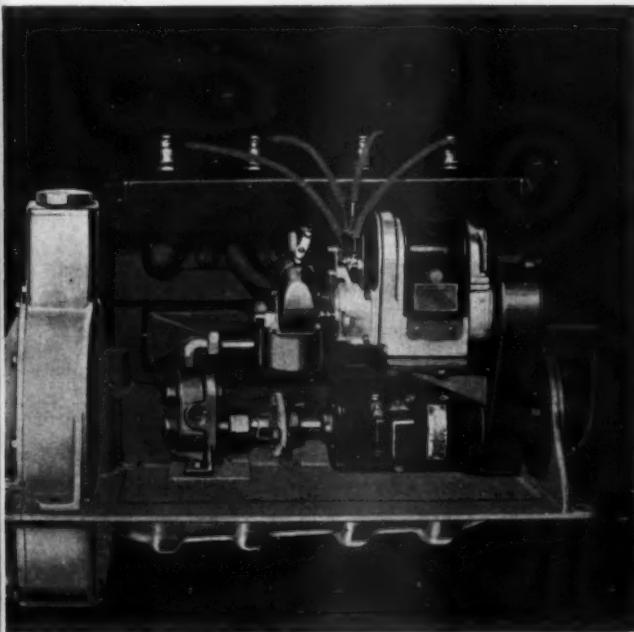
One of the most powerful small units built today is the model T dual valve Frisbie engine. This machine is a very husky job and capable of no end of hard work. Its bore and stroke are 6 by 6 inches and it will deliver its power from 600 to 900 revolutions.

the SHOW

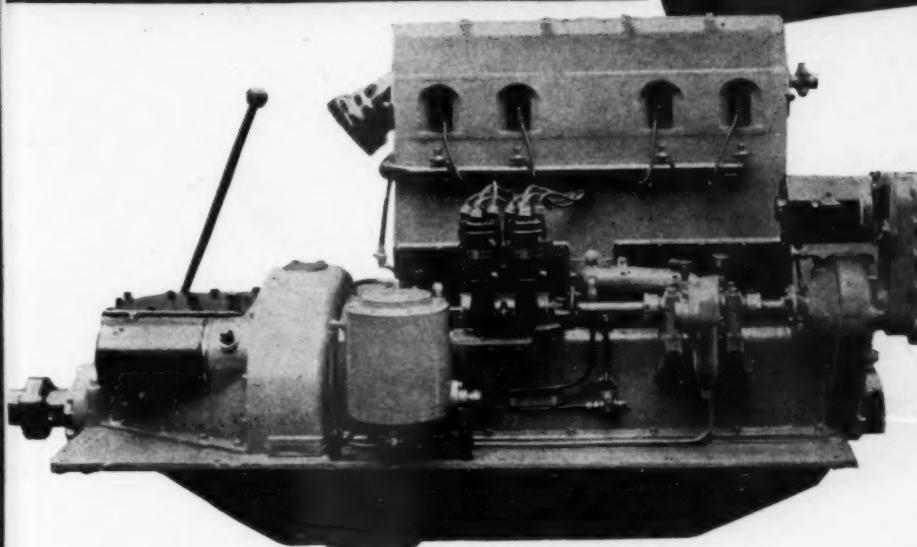
American Engine Builders
Display Complete Range
of Power Plants—Big and
Little—Fast and
Slow—Engines to
Suit Every Possible
Boat and Purse



This little Universal four-cylinder machine is a light weight engine, developing from 9 to 12 h.p. It is a complete unit power plant with a built-in reverse gear and will fit into most any kind of a boat up to its capacity



An inexpensive engine adapted particularly for use in boats where cost is an item. This little machine is a four-cylinder plant of 16 odd h.p. and is fitted with standard accessories throughout. The International Manufacturing Company, builders of this engine, supply a suitable reverse gear as an extra



An engine of exceptional power is the model MDR 100 h.p. Stearns extra reserve. This machine is fitted with double ignition, and a special type of oil cooling filter tank. Its bore and stroke are $5\frac{1}{8}$ by $6\frac{1}{2}$ inches, and it will deliver its power at 1,600 revolutions. Its weight is 1,300 pounds

OUTBOARD MOTORS



Who wouldn't like to go fishing when it is possible to quickly reach the best places, away from the disturbing traffic? The new Caille Liberty Twin attached to this boat will drive it rapidly and surely through grassy waters without danger of fouling the propeller



The detachable outboard motor built by the Spinaway Boat Motor Company, is a dependable little machine, designed and built by experts

The Elto light weight twin which develops a full three horsepower. It starts quickly and runs at high speed. The steering is by means of the rudder and not the propeller



A close-up of the Caille Liberty Twin, the brand new product of this company. This motor weighs under forty pounds and turns up to 1,400 r.p.m. The simplicity of construction and the direct drive tend to long life

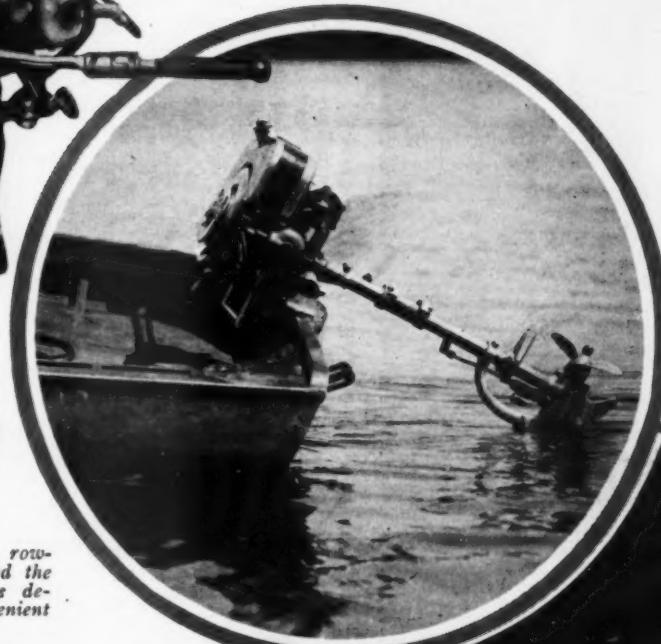


The ideal way to traverse mountain streams. The sturdy Evinrude motor attached to the rowboat will not alone propel itself, but will tow the loaded canoe when the paddlers grow weary. Enormous loads can be economically transported by this means

for Work and Play



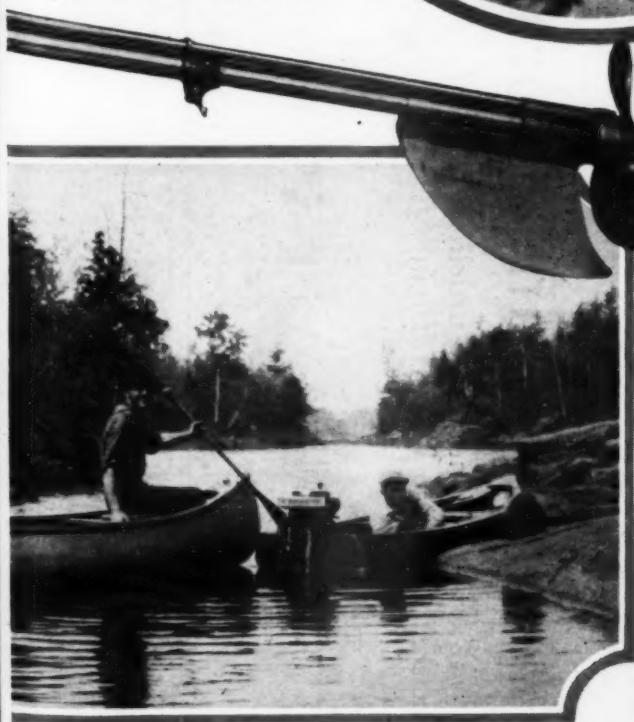
The 2 h.p. Evinrude row-boat engine has stood the test of time and is dependable and convenient



The tilt up feature as applied to the light weight Johnson twin outboard engine, permits the boat to be drawn up on the beach without injury to the wheel



The improved Lockwood-Ash row boat engine is fitted with a built-in magneto for ignition, and an easy starting device. It will propel the boat in any water in which it will float



Illustrating the way the Liberty drive engine is attached to a boat stern. The propeller is submerged and the engine operates in a vertical position





The Last Word In Motor Yachts

A 118 Footer Under Construction at Bath, Maine, to be Powered with Two Winton Engines for Early Spring Delivery

SEVERAL large motor yachts were built in 1923, of a size and type which up to a year or two ago were always powered with steam plants. The advantages of motor power are so numerous that 1924 will see the fleet considerably augmented by new craft.

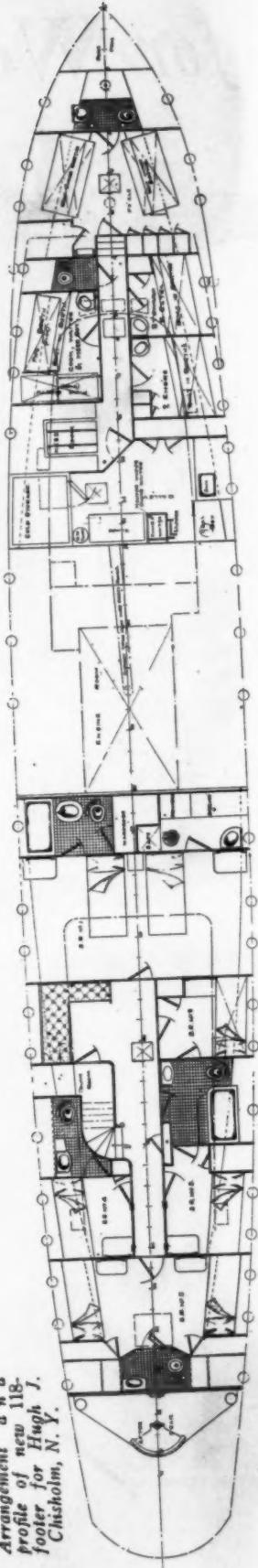
One of the first of the new motor yachts to go into com-

mission will be a 118-footer under construction at the Bath

Iron Works, for Hugh J. Chisholm of New York.

A beam of 18-feet permits commodious accommodation and with an interior arrangement which has been well worked out the new yacht should be admirably suited for the coastwise cruising for which she is intended.

Arrangement and profile of new 118-footer for Hugh J. Chisholm, N.Y.



Nineteen Twenty-Four Marine Engines

An Alphabetical Index of American Marine Engine Builders Who Are Producing
A Wide Range of Standardized Engines Suitable for Every Purpose

American Engine Co., Detroit, Mich.							Evinrude Motor Co., Milwaukee, Wis.						
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight		
2 1/2	3 1/4 x 3 1/2	1	2	800	140	5	2 1/2 x 2 1/2	2	2	1200	67		
4	3 1/4 x 3 1/2	1	2	800	150	2	2 1/2 x 2 1/2	1	2	800	45		
6	4 1/2 x 4 1/2	1	2	800	200								
8	5 1/4 x 5	1	2	600	335								
8	3 1/4 x 3 1/2	2	2	800	280								
14	4 1/2 x 4 1/2	2	2	750	350								
20	5 1/4 x 5	2	2	600	495								
14	3 1/4 x 4	4	4	950	650								
Belle Isle Boat & Engine Co., Detroit, Mich.							Fay & Bowen Engine Co., Geneva, N. Y.						
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	
4	3 1/4 x 4 1/2	1	4	750	125	LN-40	14	2 13/16 x 4	4	4	1600	375	
						LN-41	23	3 1/4 x 4 1/2	4	4	1400	510	
						LN-42	40	4 1/2 x 5 1/2	4	4	1400	900	
						LN-43	40	4 1/2 x 5 1/2	4	4	1000	950	
						LNS-43	50	4 1/2 x 5 1/2	4	4	1400	750	
Brennan Motor Mfg. Co., Syracuse, N. Y.							The Friable Motor Co., Middletown, Conn.						
Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R.P.M.	Weight	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	
M-4	20	4 x 5	4	4	1000	625	5	4 1/2 x 5	1	4	600	400	
B-4	35	4 1/2 x 5	4	4	1000	750	8	6 x 6	1	4	600	560	
B-6	40	4 1/2 x 5	6	4	700	1250	10	4 1/2 x 5	2	4	600	525	
B-6	75	4 1/2 x 5	6	4	1800	950	18	6 x 6	2	4	600	825	
60	60	4 x 5 1/2	6	4	1200	1000	20	4 1/2 x 5	3	4	750	725	
100	100	4 1/2 x 6 1/2	6	4	1500	1200	30	6 x 6	3	4	600	1175	
						42	6 x 6	4	4	600	925		
						75	6 x 6	6	4	600	1400		
						23	6 x 6	2	4	600	2000		
						50	6 x 6	4	4	600	2150		
						100	6 x 6	4	4	1200	2000		
						75	6 x 6	6	4	600	2300		
						150	6 x 6	6	4	1200	2300		
Buffalo Gasolene Motor Co., Buffalo, N. Y.							Gray Marine Motor Co., Detroit, Mich.						
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	
3	3 x 4	2	4	700	240	3	3 1/4 x 3 1/2	1	2	900	129		
5	3 1/4 x 5	4	4	600	400	5 1/2	4 1/2 x 5 1/2	1	2	900	185		
14	3 1/4 x 5	4	4	1600	690	6	3 1/4 x 3 1/2	2	2	900	240		
16	3 1/4 x 5	4	4	800	710	18	3 1/4 x 4	4	4	1200	400		
25	4 1/2 x 5	4	4	800	929	30	3 1/4 x 5	4	4	1200	550		
40	5 1/4 x 7	4	4	900	1730	35	4 x 6	4	4	1200	850		
70	6 1/4 x 9	4	4	800	2800	45	4 1/2 x 6	4	4	1000	1300		
10	5 x 6 1/2	2	4	400	1170								
13	6 x 7 1/2	2	4	350	1400								
20	7 x 9	2	4	350	2100								
26	5 x 6 1/2	4	4	350	2525								
40	7 x 9	4	4	350	3655								
45	7 1/2 x 9	4	4	350	3800								
60	7 x 9	6	4	350	4850								
70	7 1/2 x 9	6	4	350	5100								
85	10 x 12	4	4	300	8200								
125	10 x 12	6	4	300	12800								
C. N. Cady Co., Canastota, N. Y.							Hall-Scott Motor Car Co., Inc., Buffalo, N. Y.						
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	
1 1/2	3 x 2 1/2	1	2	1000	45	125	5 x 7	4	4	1700	1100		
3	3 1/2 x 3 1/2	1	2	700	90	200	5 x 7	6	4	1700	1300		
6	3 1/2 x 3 1/2	2	2	700	140								
4	4 1/2 x 4	1	2	700	135								
8	4 1/2 x 4	2	2	700	205								
16	3 1/4 x 4	4	4	1000	300								
The Carlyle Johnson Machine Co., Manchester, Conn.							Kermath Manufacturing Co., Detroit, Mich.						
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	
5	3 x 3	2	2	1200	120	3	3 1/4 x 4	1	4	800	175		
						5	3 1/4 x 4	2	4	800	300		
						8	3 1/4 x 4	2	4	800	325		
						12	3 1/4 x 4	4	4	1000	470		
						16	3 1/4 x 4	4	4	1000	500		
						20	4 x 6	4	4	1000	535		
						35	4 1/2 x 5 1/2	4	4	1200	950		
						50	4 1/2 x 5 1/2	4	4	1800	690		
Caille Perfection Motor Co., Detroit, Mich.							Lockwood-Ash Motor Co., Jackson, Mich.						
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	
2 1/2	2 1/2 x 2 1/2	1	2	700	40	2 1/2	3 1/4 x 3 1/2	1	2	800	110		
2 1/2	3 1/4 x 3 1/2	1	2	800	125	4	4 x 4	1	2	750	165		
6	3 1/4 x 3 1/2	1	2	800	150	6	3 1/4 x 3 1/2	2	2	800	210		
8	4 1/2 x 4 1/2	1	2	800	200	8	4 x 4	2	2	750	210		
8	5 1/4 x 5	1	2	500	335	10	4 1/2 x 4	1	4	750	165		
14	5 1/4 x 5	2	2	850	220								
16	4 1/2 x 4 1/2	2	2	750	350								
20	5 1/4 x 5	2	2	600	495								
14	3 1/4 x 4	4	4	1000	650								
Consolidated Shipbuilding Corp., Morris Heights, New York							Millers Motors Corp., Chicago, Ill.						
Mode	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	
K	28	4 x 4 1/2	4	4	1200	560	4	4 1/2 x 5	1	4	600	400	
Z	44	4 1/2 x 5 1/2	4	4	1200	950	6	5 1/4 x 6	1	4	500	500	
N	66	4 1/2 x 5 1/2	6	4	1200	2000	10	4 1/2 x 6	2	4	600	600	
M	150	5 1/4 x 7	6	4	1200	2350	12	5 1/4 x 6 1/2	2	4	900	650	
M	200	5 1/4 x 7	8	4	1200	4000	14	5 1/4 x 6 1/2	2	4	800	1200	
R	300	7 x 8 1/2	6	4	1300	1850	16	5 1/4 x 6 1/2	4	4	700	1500	
M	75	5 1/4 x 7	4	4	1000	2400	18	5 1/4 x 6 1/2	4	4	550	1900	
M	130	5 1/4 x 7	6	4	1000	2900	20	5 1/4 x 6 1/2	4	4	500	1500	
L	175	5 1/4 x 7	8	4	1000	5000	22	5 1/4 x 6 1/2	4	4	700	1500	
H	115	6 1/4 x 8 1/2	6	4	600	5900	24	4 1/2 x 6	4	4	550	1900	
H	165	8 1/2 x 10	6	4	550	30	5 1/4 x 6	4	4	450	2700		
H	250	11 x 12	6	4	450	35	5 1/4 x 7 1/2	4	4	450	2700		
MR	180	5 1/4 x 7	6	4	1300	50	6 x 9	4	4	450	2700		

New Jersey Motors, Inc., Keaport, N. J.							Red Wing Motor Co., Red Wing, Minn.													
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight								
15	3 1/4 x 4	4	4	900	450	K	5	3 1/4 x 6	1	4	600	...								
20	3 1/4 x 4	4	4	1500	560	KK	8	3 1/4 x 6	2	4	600	...								
The New London Ship & Engine Co., Groton, Conn. Diesel Engines																				
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	D	14	2 1/2 x 6	4	4	1000	264								
120	9 x 12 1/2	4	4	350	17800	A	20	3 1/4 x 6	4	4	800	520								
180	9 x 12 1/2	6	4	350	23000	AA	24	3 1/4 x 6	4	4	800	530								
240	9 x 12 1/2	8	4	350	30700	F	36	4 1/2 x 6	4	4	1000	650								
240	13 x 18	4	4	240	49800	B	40	4 1/2 x 6	4	4	1000	670								
360	13 x 18	6	4	240	64000	Roberts Motors, Sandusky, Ohio														
480	13 x 18	8	4	240	84300	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight									
600	16 1/2 x 24	6	4	205	120000	8	3 1/4 x 4	2	4	1000	185									
New York Yacht, Launch & Engine Co., Morris Heights, N. Y.																				
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	16	3 1/4 x 4	4	4	1000	320									
20	6 1/4 x 8	2	4	400	2000	Scripps Motor Co., Detroit, Mich.														
50	6 1/4 x 8	4	4	500	3400	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight								
75	6 1/4 x 8	6	4	500	4500	D-2	12	4 1/2 x 6	2	4	600	525								
Niagara Motors Corp., Dunkirk, N. Y.																				
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	D-2	18	4 1/2 x 6	2	4	1000	525								
15	2 1/2 x 6	4	4	1000	325	F-4	30	3 1/4 x 5	4	4	1200	550								
12	4 1/2 x 5	2	4	800	625	E-4	55	3 1/4 x 5	4	4	1800	530								
35	4 1/2 x 5	4	4	1000	995	E-4	45	4 1/2 x 6	4	4	1000	975								
80	6 1/4 x 7	4	4	1000	1650	E-6	70	4 1/2 x 6	4	4	1600	975								
120	6 1/4 x 7	6	4	1000	2350	E-6	60	4 1/2 x 6	6	4	1000	1290								
160	6 1/4 x 7	8	4	1000	3250	E-6	100	4 1/2 x 6	6	4	1600	1290								
Packard Motor Car Co., Detroit, Mich.																				
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Sperry Compound Diesel News Shipbuilding & Drydock Co., Newport News, Va.														
45	3 3/4 x 5	6	4	1800	650	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight									
60	3 3/4 x 5	8	4	1800	790	20 to 200	3 compound	2 and 4	1,000 to 10,000									
200	5 x 5 1/2	6	4	2000	900	Standard Motor Construction Co., Jersey City, N. J.														
275	6 1/4 x 7 1/2	6	4	1400	1690	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight									
400	5 x 5 1/2	12	4	2000	1150	12	5 x 6 1/2	2	4	450	850									
Palmer Brothers Engines, Inc., Cos Cob, Conn.																				
Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	18	6 x 8	2	4	400	1200								
YT	2	3 x 3 1/2	1	4	1000	98	24	5 x 6 1/2	4	4	450	1600								
NL-1	3 1/2	4 1/2 x 5 1/2	1	4	600	350	27	6 x 8	3	4	400	3200								
NL-2	7	4 1/2 x 5 1/2	1	4	600	350	37	6 x 8	4	4	400	2800								
RW-1	6 1/2	5 1/2 x 6	1	4	600	425	54	6 x 8	5	4	400	3200								
RW-2	14	5 1/2 x 6	4	4	1050	60	6 1/2 x 8	4	4	600	3300									
RW-4	28	5 1/2 x 6	4	4	600	1675	75	8 x 10	4	4	400	5300								
NR-1	6	5 1/2 x 6	4	4	600	400	90	6 1/2 x 8	6	4	400	4200								
NR-2	12	5 1/2 x 6	4	4	600	750	100	8 x 10	6	4	400	8000								
NR-3	18	5 1/2 x 6	4	4	600	1000	220	10 x 11	6	4	400	5800								
NR-4	24	5 1/2 x 6	4	4	600	1250	300	12 x 14	6	4	400	6300								
F-2	18	6 1/4 x 8	4	4	400	1600	500	12 1/4 x 13	6	4	400	9500								
F-3	26	6 1/4 x 8	4	4	400	2000	Stearns Motor Manufacturing Co., Ludington, Mich.													
F-4	35	6 1/4 x 8	4	4	400	2400	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight							
F-6	60	6 1/4 x 8	6	4	400	3800	MGU	45	4 1/2 x 6	4	4	1200	1040							
Q-1	25	7 1/2 x 10	2	4	400	3000	MHU	55	4 1/2 x 6	4	4	1200	1050							
Q-2	35	7 1/2 x 10	3	4	400	3000	MHR	65	4 1/2 x 6	4	4	1800	1050							
Q-3	50	7 1/2 x 10	4	4	400	4200	MAU	69	4 1/2 x 6	4	4	1200	740							
Q-6	80	7 1/2 x 10	6	4	400	5600	MDU	75	5 1/2 x 6	4	4	1200	1750							
C	4	4 1/2 x 4 1/2	1	2	450	240	MDR	100	5 1/2 x 6	4	4	1600	1300							
D	6	5 x 8	2	2	450	350	MEU	90	5 1/2 x 6	4	4	1200	1760							
Q-1	2 1/2	5 1/2 x 11	2	2	700	125	MER	150	5 1/2 x 6	4	4	1850	1310							
Q-2	5	5 1/2 x 11	2	2	700	180	Starling Engine Co., Buffalo, N. Y.													
F-1	4	5 1/2 x 11	1	2	650	210	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight							
VH	14	5 1/2 x 11	4	2	1200	700	Neptune	15	5 1/2 x 7	2	4	500	1150							
The Peerless Marine Motor Corp., Buffalo, N. Y.																				
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Dolphin	157	5 1/2 x 6 1/2	4	4	1650	1600								
6	5 x 6	1	4	600	450	Dolphin	235	5 1/2 x 6 1/2	6	4	1650	2000								
12	5 x 6	2	4	600	750	Dolphin	300	5 1/2 x 6 1/2	8	4	1550	2750								
20	4 x 6	4	4	1000	850	Dolphin MS	110	5 1/2 x 6 1/2	4	4	1200	1750								
35	5 x 6	4	4	650	1200	Dolphin MS	165	5 1/2 x 6 1/2	6	4	1200	2300								
24	5 1/2 x 7	2	4	600	1265	Dolphin MS	220	5 1/2 x 6 1/2	8	4	1200	3150								
50	5 1/2 x 7	4	4	650	1700	Trident	63	5 1/2 x 6 1/2	4	4	800	2190								
125	5 x 7	4	4	1650	800	Trident	94	5 1/2 x 6 1/2	6	4	800	2700								
200	5 x 7	6	4	1650	...	Trident	126	5 1/2 x 6 1/2	8	4	800	3150								
200	5 x 5 1/2	6	4	2750	...	Dolphin	190	5 1/2 x 6 1/2	4	4	1950	1650								
Regal Gasoline Engine Co., Coldwater, Mich.																				
Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight	Dolphin	290	5 1/2 x 6 1/2	6	4	1950	1950							
Y	2	3 1/4 x 3 1/4	1	4	800	Seagull	150	4 11/16 x 6 1/2	6	4	1800	1375								
FA	4	4 x 4 1/2	1	4	800	Viking	300	7 7/8 x 5	6	4	1200	4800								
UA	5	4 1/2 x 5 1/2	1	4	600	Universal Motor Co., Oshkosh, Wis.														
EA	7	5 1/2 x 6 1/2	1	4	550	Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight								
IA	9	6 1/2 x 7	1	4	500	12	2 5/8 x 4	4	4	1200	325									
FB	8	4 x 4 1/2	2	4	800	12	2 5/8 x 4	4	4	1200	325									
UB	10	4 1/2 x 5 1/2	2	4	600	12	2 5/8 x 4	4	4	1200	325									
EB	14	5 1/2 x 6 1/2	4	4	550	12	2 5/8 x 4	4	4	1200	325									
IB	18	6 1/2 x 7	2	4	500	12	2 5/8 x 4	4	4	1200	325									
FC	16	4 x 4 1/2	4	4	800	12	2 5/8 x 4	4	4	1200	325									
UC	20	4 x 4 1/2	4	4	700	12	2 5/8 x 4	4	4	1200	325									
ID	27	6 1/2 x 7	3	4	500	12	2 5/8 x 4	4	4	1200	325									
EC	30	5 1/2 x 6 1/2	4	4	600	12	2 5/8 x 4	4	4	1200	325									
CB	32	4 1/2 x 5 1/2	4	4	1000	12	2 5/8 x 4	4	4	1200	325									
IC	36	6 1/2 x 7	4	4	500	12	2 5/8 x 4	4	4	1200	325									
SC	50	7 1/2 x 9	4	4	450	12	2 5/8 x 4	4	4	1200	325									
SH	100	7 1/2 x 9	8	4	400	12	2 5/8 x 4	4	4	1200	325									

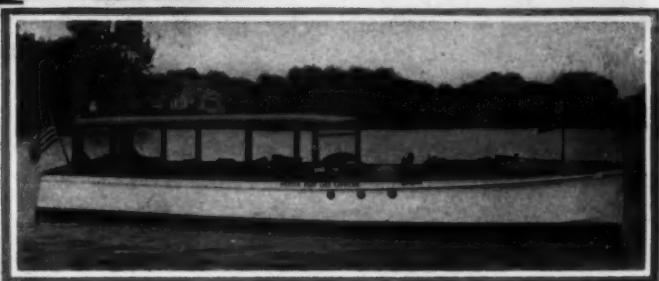
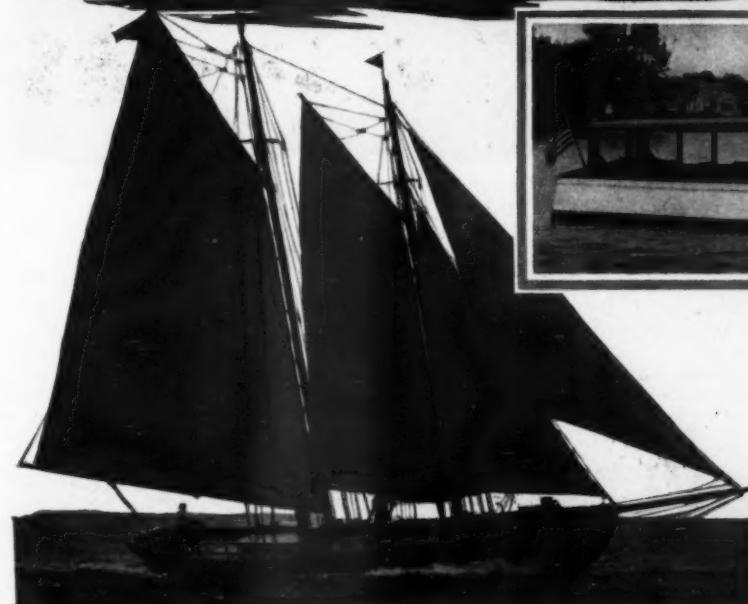
(Continued on page 198)

A Fleet of Fine Boats

Joebil is a 36-foot cruiser used by R. J. Perrine, its owner, for general cruising in and about Great South Bay. She is fitted with a model MDU Stearns engine, which drives her at 14 miles

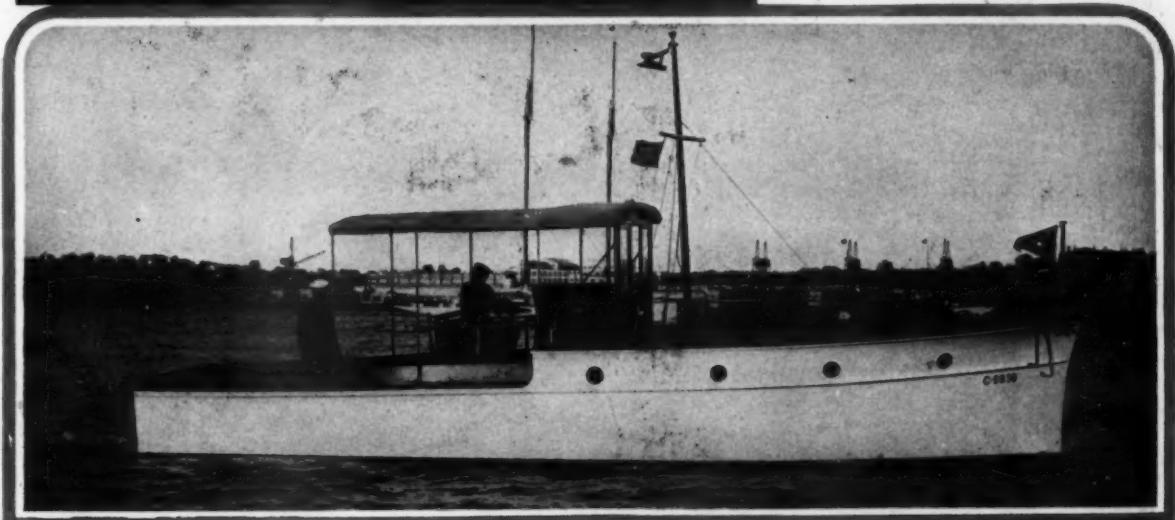


Big and Little Yachts of All Types Successfully Powered With Stearns Engines—Their Power and Reliability Meet With Yachtsmen's Requirements

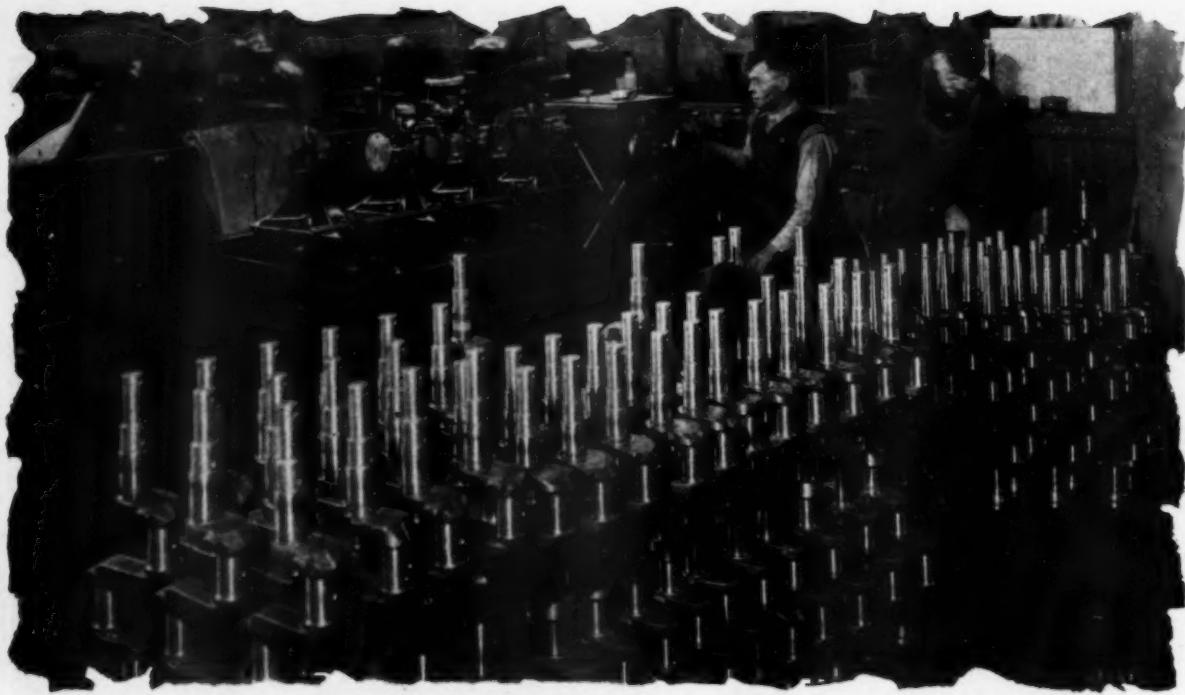


The limousine runabout Gladful is a 36-foot fast boat which does 28 miles with eight passengers. She carries a MDR Stearns engine and was built by the Everett Hunter Boat Works of McHenry, Ill.

William H. Hand, Jr. designed for B. H. I. Brown, the 55-foot schooner Vanguard which was built for him by Hodgdon Bros. Her MDU Stearns engine drives her at 8 miles under power alone



Lynx III is an unusual craft. She is designed to serve as the power tender for a 77-foot sailing yacht also owned by N. F. Ayers, her owner. The model MEU Stearns engine in Lynx III is powerful enough to permit her to tow the schooner yacht



The crankshaft balancing machine at the Wisconsin Motor Manufacturing Company's plant. All crankshafts are perfectly balanced to eliminate all traces of vibration

What Quantity Production Implies

White Cap Engines Manufactured by The Wisconsin Motor Manufacturing Company of Milwaukee, Wis. Put Through The Shop In Large Quantities

THE Wisconsin Motor Manufacturing Company of Milwaukee, Wisconsin, have been manufacturing marine engines for many years, almost since the beginning of the industry. Their experience has taught them what

properties an internal combustion engine should have for marine purposes. This knowledge of marine engines which this company has, added to experience in production and production methods, gives them the fundamentals necessary



A portion of the cylinder department showing the progressive line for drilling and tapping the holes in cylinder and heads. All holes are machined without removing the casting from the fixture, which insures accuracy



The turning of flywheel castings is done on vertical lathes and are all accurately machined and balanced on modern type balancing machines

to give to the motor boatmen of the country, a gasoline motor which is the last word in design and construction and at a price which is fair and reasonable.

The illustrations on this page show only a few of the up-to-date machines and tools in the Wisconsin plant which are used in the manufacture of marine engines. Their plant covering several acres of ground, is completely equipped with all of the latest machinery which is used exclusively for the

manufacture of gasoline engines. Motors are not put through singly, or in lots of five or six, but in fifties or more. This practice not only makes possible a low price, but it assures the prospective buyer that a sufficient stock of completed motors will always be on hand so that he will be sure of having his order shipped on the same day it is received, instead of being required to wait several days, a week or half the boating season as has often been the case.

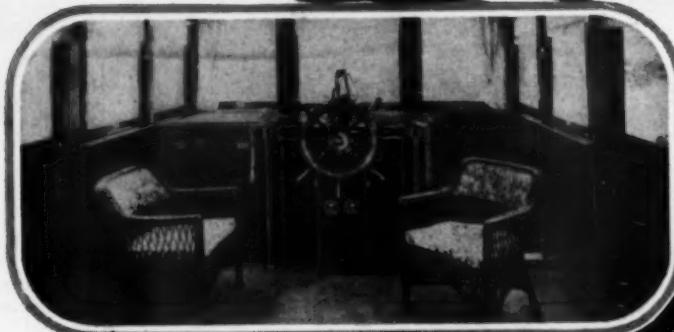


The special Ingersoll milling machine which trims cylinder blocks and cylinder heads. The machine is loaded after the castings have passed the milling cutters and at the end of travel is ready to be brought back for machining the next lot of castings

An Enclosed Bridge Cruiser

The completely equipped standardized 55-foot craft as built by the Rochester Boat Works

A roomy 55-foot cruiser built for Donald Woodward of Le Roy, N. Y. by the Rochester Boat Works, and completely equipped with every possible convenience

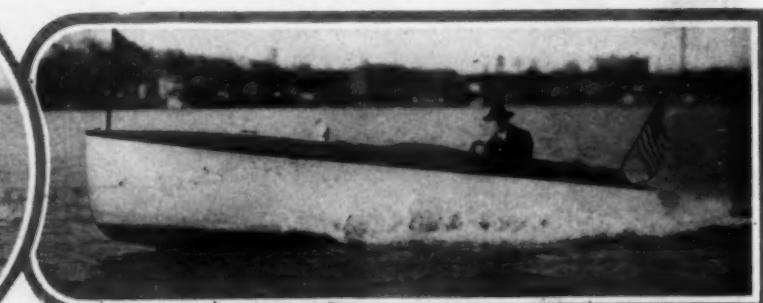


The enclosed bridge deck is amidships and of roomy proportions. It contains the engine controls, steering gear, and navigating equipment. The cabin contains berths for four, with the usual furnishings

Under the bridge are the two Sterling six cylinder engines which deliver 14 miles at 800 r.p.m. Full electric auxiliary equipment is carried. The boat is used on the waters of Lake Ontario and the St. Lawrence, and is now on its way to Florida



A Snappy Little Craft



A fine little runabout of only 20-feet length and 5-foot beam is being built by the Fay & Bowen Engine Company in their plant at Geneva, N. Y. They have powered this boat with one of their little 12 h.p. Gobest engines, with which it makes a speed of 14 miles

HARRIET, A Day Cruiser



A speedy 40-foot day cruiser built by the Richardson Boat Company, North Tonawanda, N. Y., and powered with a six cylinder Sterling Sea-Gull of 150 h.p.

ONE of the latest products of the Richardson Boat Company at North Tonawanda, N. Y., is the 40-foot day cruiser Harriet, illustrated here. This boat, with a beam of $9\frac{1}{2}$ feet, is a stock hull of the V-bottom type, and which has been built in quantities and varied by different types and arrangements of cabin interiors. Intended particularly for day service, excellent outside

accommodations have been provided in the forward and after cockpits. All windows in the deck house are made to open so that it can be thrown open, and at the same time provide snug quarters when the weather is bad. It is powered with a six-cylinder Sterling Sea-Gull engine, which provides a speed of about 20 m. p. h. The company has also built runabouts in standardized sizes of 20 and 35 ft.

They're Off For Miami

A MOST interesting class of boats which is now on the way to the South is a combination cruiser which has been called Play Boat by the Consolidated Shipbuilding Corporation, its originator. These boats are a combination cruiser, runabout, and fishing boat all in one. They are 34 feet long with a beam of $8\frac{1}{2}$ feet, and are so powered that they are able to develop speeds up to 28 miles an hour. Numerous boats have been completed for prominent yachtsmen, and they will be seen in Florida regattas this winter. The design has been centered around the famous sea skiff or dory type boat. However, the design

has been modified to include both V-bottom and round bilge portions in the underbody. This provides both stability and buoyancy, while the V-bottom portion aft gives easy riding at high speeds. They are fitted with a unique twin screw arrangement. Alongside of the main motor a 12 h. p. Cadlyford engine is installed. This is controlled from the same position as the main motor and has an independent feathering propeller. This motor is economical when trolling and running at slow speed. When the main engine is needed the little engine is idle and the propeller blades are turned fore and aft.



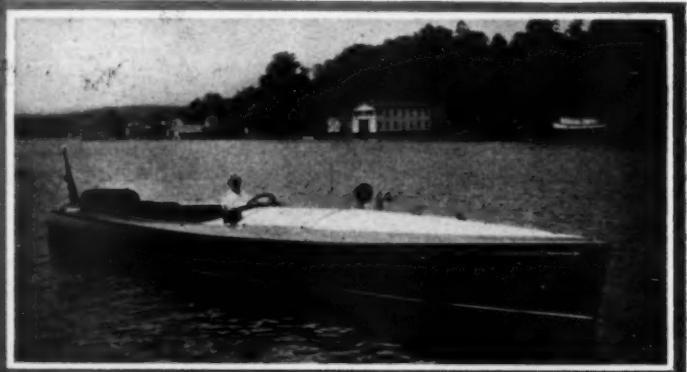
A train load of Consolidated built play boats now on the way to Florida and winter vacations



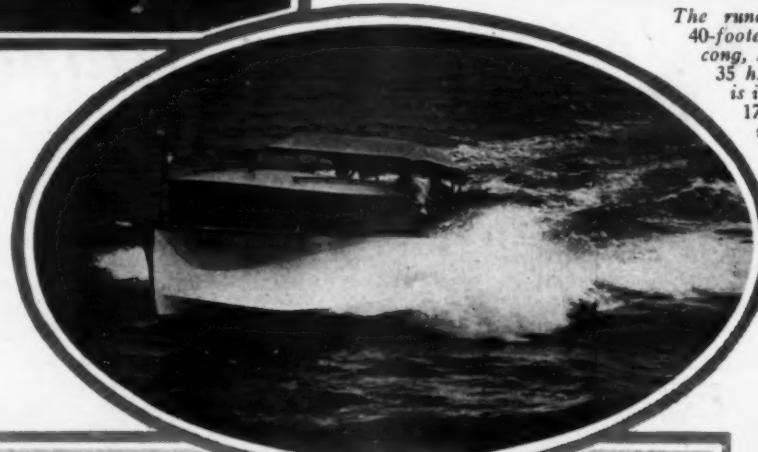
The runabout Areck is a 25-foot stock boat built by the Racine Boat Co., Racine, Wis., and which is used by its owner, A. G. Reck of Columbus, Ohio, for pleasure purposes. She is fitted with a Kermath 35-50 which drives her along at a fast clip

Many New Boats Give Service

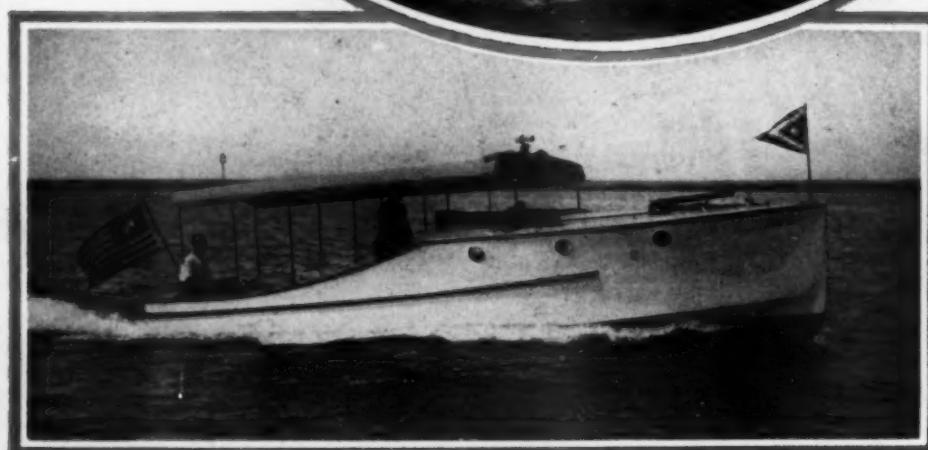
Satisfactory Installations of Kermath Engines Please Proud Owners of Many Varied Craft



The runabout Simplex is a big 40-footer used on Lake Hopatcong, New Jersey, and with the 35 h.p. Kermath engine which is installed, is able to develop 17 miles speed. The boat is used in passenger service and is licensed to carry 26 persons



Olive III is a clever 25-foot runabout cruiser of a new type recently built for C. A. O'Donohue, Huntington, L. I., by the Kretzer Boat Works on the Harlem River. This little boat has been fitted with one of the 50 h.p. Kermaths and does better than 23 miles per hour



Grey Hound is a neat little cruiser of 30-foot length also fitted with the 50 h.p. Kermath and which will do almost 15 miles. She was built for William S. Preston of Burlington, Vt., and is used extensively on Lake Champlain, New York

WHITE CAP II, A 24-Foot Utility Craft

A Speedy Design for a Shallow Draft Boat Which Will Navigate Efficiently In Two Feet of Water—Complete Specifications and Building Instructions

By John L. Hacker, N. A.

Designed Exclusively for MoToR BoatinG

HERE has been considerable demand for a boat capable of navigating in shallow waters and the design of White Cap II has been prepared to meet this condition. This little boat will make a thoroughly practical runabout and by reason of the peculiar special construction at the stern, will operate safely in waters not much more than two feet deep. The propeller is not housed in a tunnel, but is enabled to get good solid water which is not disturbed or broken, with a resulting gain in efficiency in speed. The design calls for a seaworthy boat which will be safe in reasonably rough water, and which will perform equally as well as boats of the regulation type. As far as speed is concerned, it is possible to drive this boat as fast as 25 m.p.h. However, it is not designed to be abnormally fast, and with the specified White Cap motor will do a conservative twenty miles or better. With engines of less power, it will be easily possible to drive this boat at speeds from 10 to 12 miles, under all conditions, and on a draft of not exceeding 18 inches.

The construction of a boat of this kind is not an unusually difficult task. Its structural features are in general quite similar to other boats of this same general type, and the method of building is also identical with the descriptions which have been often repeated. Owing to the peculiar form of the after sections, it is not advisable to incorporate any amateur changes in the design. The designer and MoToR BoatinG stand back of the design if the boat to be built follows it in all particulars. If however, changes are introduced, such as adding a number of feet to the length, or the beam, or the draft, or attempting to make a cruising type boat out of this, the result will be disastrous.

In order to build this boat we must have a suitable shed or building to protect the work from the weather while the construction is going on, and then also a smooth floor on which the lines of the boat can be laid out in their full size in order to prepare the molds which are used to erect the boat. It must be remembered that the dimensions given in the table of offsets are to the outside of the planking and the thickness of this must be deducted from the drawings in order to give the net outside dimension of the molds. After the molds are all cut and prepared they are erected at the intervals given on the line drawing and the construction of the hull can be proceeded with. Be careful to stay the keel and molds securely to the floor of the building. They must be rigid so that there will be no lost motion anywhere about the structure.

The usual methods of construction are followed, so that the chines, frames, stem, and transom are all placed and secured in their proper order. The planking will then follow as is customary, and the interior finish and deck construction are applied at a suitable opportunity. The engine foundation can be installed before the planking is in place, and the specifications followed carefully for details of the fastenings to be used. After the hull has progressed sufficiently, the paint can be applied and the engine installed. All accessory equipment must be placed before the hull is closed in, so that it will not be necessary to cut away material in order to fit parts of machine and tank equipment. The painting and external finish will also be done in the usual

manner, and a more complete description of the several steps involved will be found in the specifications which follow.

SPECIFICATIONS

The principal dimensions of this boat will be: Length overall 24-feet 1-inch, beam overall 6-feet 2-inches, free board forward 2-feet 9-inches, and at the stern 24-inches. The draft is 1-foot 4-inches.

Keel-Assembly: Keel is to be shaped as shown on the drawings of $1\frac{1}{8}$ -inch white oak, the stem and knee to be of $1\frac{1}{8}$ -inch white oak shaped as per plan, and to be through bolted with $\frac{3}{8}$ -inch bronze or galvanized iron bolts. The apron is to be shaped of $1\frac{1}{2}$ by 4-inch white oak and extend to station No. 2. It can be either bolted or rivet fastened to the keel with two intermediate fastenings, and one through the frame floor, as indicated. There will be a filler piece from the keel to the stern of the same thickness as the planking. The stem and apron are to be properly rabbeted to suit the planking. The strut will be of manganese bronze securely bolted to the keel and apron. The shaft log will be of the Erico type to suit a $1\frac{1}{4}$ -inch shaft. It will be securely bolted to the apron before setting the frames. A hole should be bored through the apron $\frac{1}{4}$ -inch larger than the shaft diameter.

Transom: The transom is to be of $\frac{3}{8}$ -inch mahogany or oak. It will be shaped as per offset table. There will be $\frac{1}{2}$ -inch oak cleats on the sides, top, and bottom. It is to be in two pieces, and to have a batten over the seam. A stern post of $1\frac{1}{2}$ by 2-inch oak will be fastened to the outside of a knee on each

side of the keel as shown. The transom will have a cleat between these. The entire transom will be screw fastened and wood plugged. A neat opening should be cut in the transom for the rudder tiller to pass through.

Frames: The frames are to be of white oak or white ash and $\frac{3}{4}$ -inches on the sides and $\frac{1}{2}$ -inches on the bottom. They are to be shaped as per offset table and halved at the chine, fastened with four $\frac{1}{4}$ -inch bolts or No. 8 copper rivets over burrs. Frames are to be approximately 3 inches in depth at the bottom and 3 inches at the keel, tapering to $2\frac{1}{4}$ inches at the top on the sides. They are to be joined with a floor of 1-inch oak on all stations except Nos. 5, 6, and 7, at which point the floors shall be $1\frac{1}{4}$ inches. Frames are to have at least six bolt or rivet fastenings on each side and to be through bolted to the keel with a $\frac{3}{8}$ -inch bolt to station No. 4, and then two $5/16$ -inch fastenings through to the rabbet as far as the stern. When the boat has been planked, oak frames should be inserted between the sawn frames as shown, which are to be $\frac{1}{2}$ by $1\frac{1}{2}$ inches from the keel to the chine, and $\frac{3}{8}$ inches from the chine to the top. The spaces between the battens are to be filled with pine or spruce and to be through fastened with the planking. These frames are to be tied across the keel.

Chines: The chines are to be shaped from a single length of $1\frac{1}{8}$ by $1\frac{1}{8}$ -inch white oak or yellow pine. It is to be rabbeted to suit the planking with a straight cut on the side, and a shaped bottom. It may be tapered slightly towards the stem. It should be let into the frames and through fastened to them with $5/16$ -inch copper or bronze rod riveted over. A brass angle on each side fastened to the frame and chine may be used instead if desired. The chines should be

(Continued on page 260)

SMALL MOTOR BOATS

Their Care, Construction and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the February Prize Contest

1. Explain and illustrate how best to build satisfactory sliding berths in a cruiser.

(Submitted by R. H., Mamaroneck, N. Y.)

2. Describe or illustrate methods which should be used in giving the motor its annual cleaning and overhauling, bearing in mind faults to be remedied or stunts by which the motor efficiency can be increased.

(Submitted by V. L. S., Wilmington, Del.)

Build a Bench for Your Shop

Working Details and Structural Suggestions for Building and Using a Most Valuable Shop Accessory

Answers to the Following Question Published in the November Issue

"Describe and illustrate a satisfactory layout and equipment of work bench that may be installed in the average boat-house by motor boatman possessing an average inclination for tinkering and repair work."

A Substantial Work Bench

(The Prize-Winning Answer)

IT is essential that a work bench in order to serve the required purposes should be heavy in construction, therefore, I would not suggest making any of the parts of lighter material than as shown. For the working top, white ash is the best wood to use, with white oak as a second preference. If it is impossible to obtain it in one piece 18 inches wide, two pieces will have to be used by doweling or bolting them together. The thickness of this top will permit planing off from time to time when it becomes badly scarred.

with variable jaw openings from 12 to 24 inches. On the opposite end of the bench the swivel-base iron-worker's vise should be mounted so that same may be used from either the front or end of the bench by swinging through 90 degrees. This should be secured with heavy bolts with thumb nuts, to allow easy removal when long wood work is being handled. A vise with a $3\frac{1}{2}$ or 4-inch length of jaw is a very useful size. A bench stop of adjustable height is located near the wood worker's vise, for holding boards when laid flat on the bench top for planing.

The sunken tray in the back of the bench serves as a convenient place to put tools when not in use and prevents them from being accidentally thrown off the bench. Yellow or white shellac is best for a finish, especially for the top, making a very hard surface resistful to marring and wear. If it is desired, the under part of the bench may be en-

closed and provided with shelves or drawers for holding tools, etc. H. A. M., Philadelphia, Pa.

H. A. M., Philadelphia, Pa.

Handy Bench for All Work

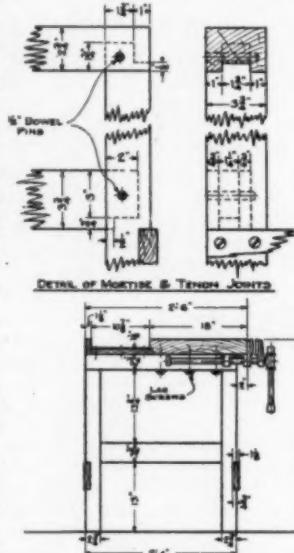
THE accompanying sketch shows a combination wood working and mechanics' bench suitable for the average repairs about the boat house. The dimensions given are for a compact, sturdy bench but the top size, or total length may be increased or reduced to fit into the available space.

A piece of $\frac{1}{2}$ -inch plate steel about six inches square is sunk, flush, into the top over center support. This protects the bench edge.

when filing or whatever job might injure the wood top. The size of tool drawer ($4\frac{1}{2} \times 15 \times 16$) should not be increased or the weight of tools placed inside may make it too heavy to slide easily. The front of the drawer is set back one and a half inches so that nothing will project beyond the front and interfere with long work held in the wood vise, or C clamps placed along edge. The bench stop (a) prevents flat work from slipping forward.

The rear portion of bench top is a tool recess, six inches wide, backed by an upright edge to keep tools from falling off. The bench screw in the wood vise is off center. This allows work to be held in a vertical position as well as horizontal. Guides (b) are provided to keep vise from twisting. A round stick fitted into vise block will answer for this purpose. Removable pegs, placed in holes, on front uprights, prevent long work from slipping down when held in horizontal position.

The wood vise is placed in position to over-lap the left upright which acts as straight edge for vertical work. The bench or mechanic's vise should be a combination



In this prize winning bench design by H. A. M. provision has been made to permit all types of work to be handled.

with standard, and pipe jaws, and swivel base to work at all angles. Preferably placed at right side of bench so work may be done from end, as well as front of bench. This position would allow a free right arm movement whereas in the left end position, work would be done over the projecting wood vise. The bench supports must be rigidly cross braced and solidly anchored to the floor with lag screws of sufficient length to hold.

The best method of fastening cross braces is by bolt and nut as shown in detail. Cut a hole through the cross member sufficiently large to accommodate nut on bolt. Now bore a hole through the upright and into the cross member, deep enough to allow for bolt end to pass through the nut. Use same size wood bit for boring holes as bolt to be used. Tighten up on bolts to take up any looseness that may occur at joint.

Eight bolts are required, they should be six inches long, of three eights stock and must have square or hexagon heads. A large size flat washer is placed beneath the bolt head to allow turning without gouging into the wood when tightening up.

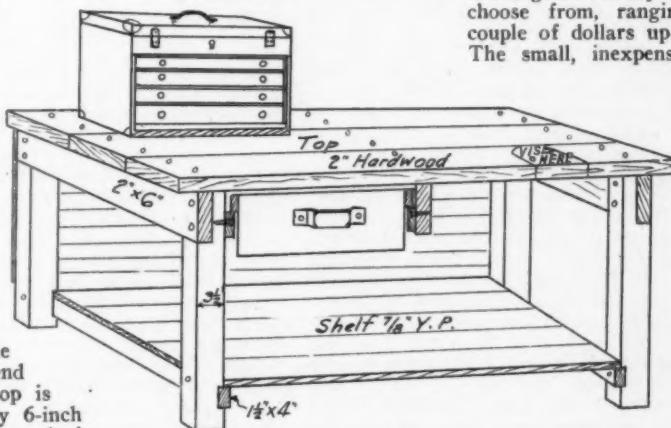
Another method is Tenon and Mortise as shown in detail. The joints must be carefully made and unless pinned and glued are liable to work loose under strain and cause a wobbling bench.

If drawings and details are carefully followed the bench will more than pay for itself in utility and satisfaction. G. E. C., Philadelphia, Pa.

The Boat Mechanic's Bench

A SUITABLE work bench for doing repair work, etc., in a boat house should be about five feet long by two feet wide if room is available. The top should be of hard wood, preferably maple, about two inches thick so as to form a substantial foundation for the vise. Bolts should be used for fastenings as much as possible, as they are sure to hold, whereas nails and spikes are likely to become loose in time, allowing the bench to twist and wobble with every pull. The legs are 4 by 4-inch yellow pine with a 2 by 6-inch piece notched in across the ends as shown and a 1 by 4-inch piece notched in lower down to carry the shelf. After the two end sections are made up the top is bolted on through the 2 by 6-inch pieces with the bolt heads sunk in flush. The shelf will brace the legs to some extent and if the back is closed in with $\frac{1}{8}$ -inch matched ceiling or other suitable lumber the bench will be very rigid and strong. The sketches will show the construction so no further description will be necessary.

For the layout of tools it is not the intention to go through the catalog and order everything that could be used or might come handy, but rather to include only the tools which



A very rugged type of bench has been designed by C. H. C. which provides places for tools and the work

and small screwdrivers. The automatic types are good. Six- and eight-inch adjustable Crescent wrenches or other make of similar pattern.

Twelve-inch monkey wrench.

Ten-inch pipe wrench.

Fourteen-inch pipe wrench. (Continued on page 258)

Rules for the

Prize Contest

ANSWERS to the above questions for the March issue, addressed to the editor of *MoToR BoatinG*, 119 West 40th St., New York, must be (a) in our hands on or before January 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before January 20. The editor reserves the right to make such changes and suggestions in the accepted answers as he may deem necessary.

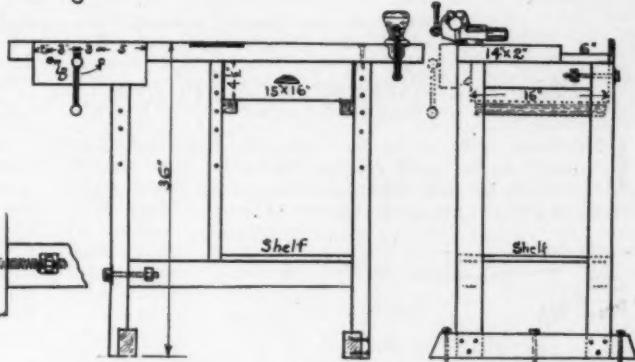
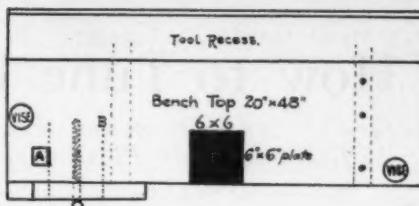
The prizes are: For each of the best answers to the questions on page 74, any article or articles sold by an advertiser advertising in the current issue of *MoToR BoatinG* of which the advertised price does not exceed \$25, or a credit of \$25 on any article which

sells for more than that amount. There are two prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer both.

For answers we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of *MoToR BoatinG* of which the advertised price does not exceed \$25, or a credit of \$25 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.



The bench designed by G. E. C. provides a handy and useful steel plate on its top

experience has proven really necessary in repairing the motor and in making and repairing such other small equipment about the boat as may be accomplished with a vise and hand tools.

Perhaps the most expensive item will be the vise. There are a great variety of styles and sizes to choose from, ranging in price from a couple of dollars up to twelve or fifteen. The small, inexpensive ones will do to hold small pieces for filing or sawing and are a whole lot better than nothing; but for real service a good, plain, substantial vise having three-inch steel-faced jaws and costing around eight or nine dollars will prove most satisfactory.

Other necessary tools are:

Heavy and light ball-pein hammers.

Hacksaw frame and dozen blades.

Large, medium

and small screwdrivers.

The automatic types are good.

Six- and eight-inch adjustable Crescent wrenches or

other make of similar pattern.

Twelve-inch monkey wrench.

Ten-inch pipe wrench.

Fourteen-inch pipe wrench.

How to Tune Up the Boat

Valuable Suggestions on Eliminating Friction and Increasing the General Efficiency of the Boat and Power Plant—Speed and Power Can Both Be Improved

Answers to the Following Question Published in the November Issue

"Describe and illustrate thoroughly any methods by which you have increased your speed, other than merely changing the propeller, using the same engine and hull."

How to Determine the Efficiency

The Prize-Winning Answer

In almost every motor boat carefully examined, many things can be found that are not in the most efficient condition, but which can be tuned up, and this is a part of the work of men connected with a boat-building estab-



Fig. 1: The series of illustrations by F. W. S. which shows the action of the stern board when the boat is in motion

buy and sell used boats, and some of them become very expert at this. There is no secret about it or sharp practice; they know how things should be and try and put them in that condition, and many boat owners exert themselves in the same direction and try and keep their boats in the best condition in all ways, at all times. They are the ones that know the most, work the hardest, and get the most out of their boats in pleasure and profit. This is rather a large subject on which several small volumes could be written, but we shall try here to call attention very briefly to some of the more common things that may be helpful.

For each model and size of boat there is a most suitable speed, and commonly it is not economical to press the boat much beyond this, although it can often be done, but it is well to first determine, if possible, what is the best natural speed for that model and size boat, and if the speed found is much below that, diagnose the case carefully to determine whether it is lack of power, low propeller efficiency or whatever the principal cause may be, as well as the other most contributing causes, for low speed is not usually solely the result of one defect.

Be sure that the outside of the boat is as smooth and clean as possible, with no unnecessary projections, that

the exhaust does not aerate the water going to the propeller, and that the propeller does not overload the engine and so cause it to drag or run much below its best speed; if it does, the propeller may be cut down in diameter or the blades chipped narrower. Be sure that the propeller does not allow the engine to run too fast for its design and so give little power. Be sure that your engine is in good condition and giving the power necessary to drive your boat at the suitable or desired speed. If in good condition, but in need of a little more power occasionally, in some cases you may increase the compression, use a fan to increase the air pressure at the carburetor or crankcase intake. Improve your gasoline by adding a very small quantity of benzol, picric acid or turpentine and other such materials, or bleeding a very little oxygen (from a small steel bottle of compressed

oxygen) into the air intake. I understand that acetylene is very efficient, used in that way or simply drawn in at ordinary atmospheric pressure from a simple gas generator.

In many motor boats the rudder is larger than necessary, I believe, and so has too much skin friction. To reduce the area by a little trimming would save power. Also in many boats the propeller is set too near the stern post and a large stuffing box, the result being that the propeller does not get its water freely, and may even draw down air. In many old boats there is much loss of power between the engine and the propeller; the journals may be rough, the boxes out of line and poorly lubricated. Roller and ball-thrust bearings running in a bath of oil are a great help, but often the oil bath is not necessary.

Occasionally you find an engine that has too many auxiliaries attached to it—a fric-

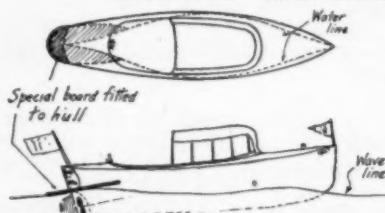


Fig. 2: This shows the arrangement of the special stern board and the bulge built on

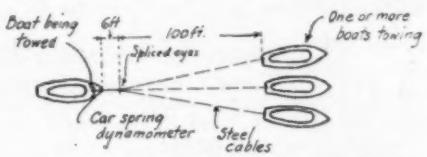


Fig. 3: The experimental method of finding the actual tow line horse-power

tion driven igniter, a friction driven small lighting dynamo, a bilge pump, a sanitary pump, etc., etc., each one driven by friction, or some other inefficient manner that robs the propeller of the power. Piping about the engine is another common source of loss of power. Be sure to have the engine exhaust as large and straight and short as possible. The back pressure on the engine from the exhaust pipe and elbows cuts down your power and leads to inefficiency of the cylinder volume very rapidly. Notice how careful men are to use 45-degree ell's, short piping, etc.; that put in low-pressure heating systems. Such men could often greatly improve the piping of motor boats. A universal joint near the engine on the propeller shaft is often a good investment.

Many boats have too much wind resistance, too many things to cause loss of power that way—awnings, cabins, pilot houses, etc., etc., that are larger than necessary and abound with angles, wind pockets and other obstructions. When you make thirteen miles per hour over the ground against the wind, the wind will pass you at twenty-six

miles per hour, and it is generally considered that wind resistance varies as the area of surface and as the square of the velocity; so it pays a motor boat owner to keep the area exposed to the wind at a minimum, making it smooth and with as few angles as possible, rounded off well along the stream lines in every direction.

In some boats the engine shaft is set at too great an angle with the horizontal; the blocking under the engine should be lower and the engine set further forward. The thrust of the propeller developed by the power of the engine passes up the axis of the propeller shaft, and so any inclination of the shaft leads to the use of part of the power of the engine to continually lift the stern of the boat, detracting just that much from driving the boat ahead. In large commercial ships where economy is de-

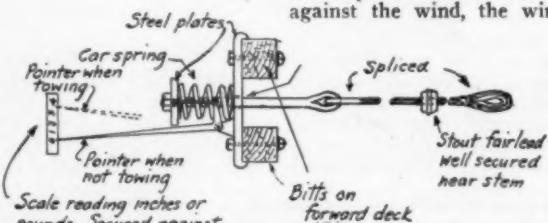


Fig. 4: The tow line dynamometer as secured on the forward deck

angle with the horizontal; the blocking under the engine should be lower and the engine set further forward. The thrust of the propeller developed by the power of the engine passes up the axis of the propeller shaft, and so any inclination of the shaft leads to the use of part of the power of the engine to continually lift the stern of the boat, detracting just that much from driving the boat ahead. In large commercial ships where economy is de-

sired, you find hardly any inclination to the propeller shafts. Some propellers waste power by being rough or uneven, or having been improperly chipped on the leading edge. Where a man wants to get the best results I believe it probably always pays in a motor boat to get a bronze propeller that has been ground and polished, not necessarily planned or profiled on the after face, and keep it in that condition.

Some boats squat too much at the stern, which may cause the loss of much power by the making of waves, the bad stream lines resulting, making much wake and increasing the effective inclination of the propeller shaft and in other ways. In some boats the lift from the propeller, because of the inclination of the shaft, avoids at least part of the squatting that otherwise would occur, but at the expense of gasoline and speed. Sometimes the ex-

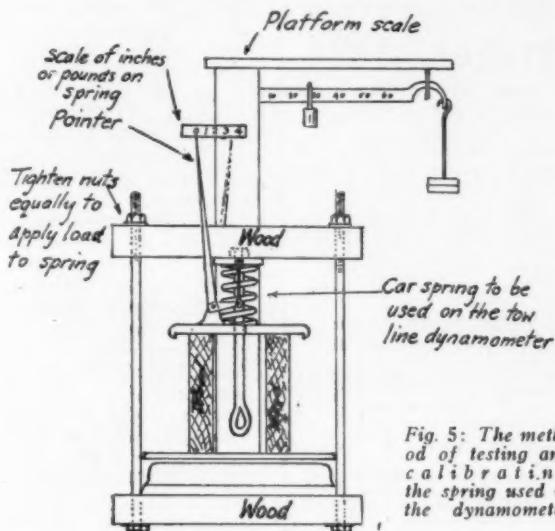
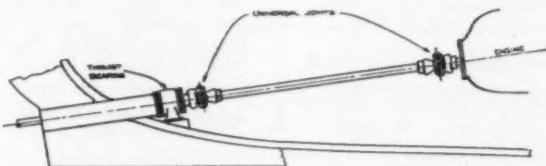


Fig. 5: The method of testing and calibrating the spring used in the dynamometer

cessive squatting may be partially overcome by the way the boat is trimmed by the passengers, freight, or water tanks, etc., and this point should be carefully watched to secure the best results at the least cost. Boats have been helped by attaching a stern board to a boat over the propeller after the styles shown in figures 1 and 2, made very smooth, and as small as will give the propeller solid water to work in and the minimum necessary lift to the stern. In one case the writer knows of an owner who has temporarily built out the stern at the sides to partially secure some lifting effect and more solid water for the propeller, and will probably make it a permanent change.

Some very practical and useful data may often be obtained at the expense and trouble of having the boat towed as near the desired speed as possible by wire ropes from one, two or even three of the fast motor boats of



E. F. W. claims that the introduction of universal joints in the shaft line will reduce friction

your friends, in still water, and using a car spring (an old one from a street car or a light railroad car will do) to measure the pull. As indicated diagrammatically in figures 3 and 4, the spring may be calibrated after the manner shown in figure 5, and the speed of the boat obtained by taffrail logs, or passing range poles or other well-known methods. Of course the propeller should be removed from the towed boat and a good length of tow line used, then

for each mile per hour the towed boat travels through the water one tow-line horse-power will be 32.6 pounds avoirdupois pull. Thus, if the towed boat passes through still water ten miles per hour and the spring shows an average compression on tow-line pull of 652 pounds, the tow-line horse-power would be twenty.

The same general arrangement may be used on the stern of the boat with the tow line fast to a wharf, and thus the actual useful propeller horse-power of the engine with the boat stationary in still water may be found with the engine and propeller running at normal speed, and this used as a check against the tow-line horse-power when the boat is being towed. The same spring and pointer being used in both cases; to make this clear, see figure 6.

In practice the rated brake horse-power of your engine must be from ten per cent to one hundred per cent more than the line horse-power at the desired speed. For everyday work, if the horse-power is about forty per cent more than the tow-line horse-power, we may consider the boat fairly efficient for a commercial craft.

The horse-power for any given vessel is often considered to vary as the cube of the speed. So if we cannot get our motor boat towed at the speed we desire, we may estimate the probable tow-line horse-power at the desired speed from the tow-line horse-power at the speed it was actually towed at; and so in the example given above, and we wish the boat to run at say twelve knots normally, we should expect a tow-line horse-power of

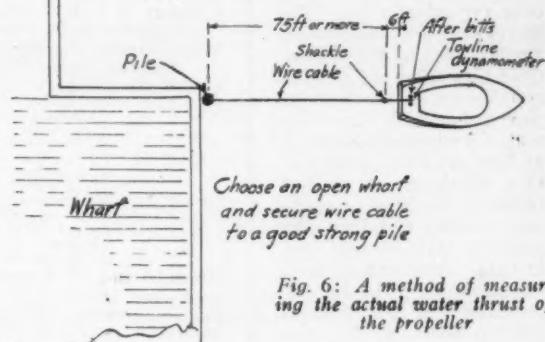


Fig. 6: A method of measuring the actual water thrust of the propeller

$(20 \text{ by } 12^2) \div 10^3 = (20 \text{ by } 1728) \div 1000$. About $34\frac{1}{2}$ tow-line power, or a brake horse-power at the engine of about $34\frac{1}{2} \div 1.35$, say 50 rated brake horse-power engine should be used.

F. W. S., Richmond, Va.

Method for Increasing Boat Speed

PROBABLY the easiest and most effective method of obtaining increased speed for motor boats is one which eliminates, as far as possible, all the engine power that is wasted before it reaches the propeller. The power that is lost between the engine and the propeller of most boats is not generally appreciated, but it is plain that the power delivered to the engine crankshaft is not as important as is the power delivered to the propeller.

There are several factors tending to cut down the power that is delivered to the propeller. These factors all tend to throw the propeller shaft out of its original alignment with a resulting friction on the shaft bearings and stuffing box. Not only is there a decrease in delivered power and a resulting decrease in speed, but usually such misalignment of the shaft causes the aft end of the boat to vibrate and the stuffing box to become leaky.

At the time the boat is built, great care is exercised in being sure the propeller shaft is correctly lined up. The wood in the hull at this stage is dry, but as soon as the boat is launched the wood starts to absorb water and swells. Different parts of the hull, having varying amounts of wood, swell to varying extents. As a result, the propeller shaft is forced from its original location; but in very few instances is that ever corrected.

Not only does the swelling of the various parts of the hull tend to force the shaft out (Continued on page 258)

Many Craft Entered for Southern Regattas

Events at Palm Beach February 21 and 22, Miami and Miami Beach March 7 and 8, and at Havana, Cuba, on March 15 and 16, Give Promise of Exciting Sport During Winter Months

THE action taken at the Annual Meeting of the American Power Boat Association tending to develop more substantial racing craft and the elimination of freaks has met with universal approval, everywhere. The other changes made in the racing rules, principally a new rule for handicapping cruisers, has already stimulated racing interest and race committees are busy with their plans for the 1924 regattas. Racing men generally seem to approve of the change which provides for holding the three heats of the Gold Cup races on a single day instead of a race to cover a period of three days. The new scoring system to be used in the future in the Gold Cup race, as well as all other heat races held under American Power Boat Association rules, will assure a much more interesting race program from a spectator's standpoint. The new classes, especially the 21-foot runabout class, are limited to boats with motors of not over 335 cubic inches. The Development Class along similar lines to the present Gold Cup rules but with no restrictions on the hulls or power plant with the exception of a minimum length of 25 feet and a maximum piston displacement of 625 cubic inches, has already started many racing men planning craft for this class in 1924. Also, reduction in the allowable piston displacement in the Fisher-Allison boats from 1,600 cubic inches down to 1,075 cubic inches has assured a race for 1924 probably at Buffalo.

Although it was prophesized immediately after the 150-mile, \$25,000 Sweepstakes race, held at Detroit last Labor Day, that this would be the last event of its kind ever held, yet at a recent meeting of the Yachtsmen's Association of America, it was voted to again hold the Sweepstakes event, open to the same types of boats and power plants, the only change being that boats powered with full-sized Liberties (1,650 cubic inches) where the valve mechanism and area has not been changed, would be permitted in the 1924 event provided the boat had a minimum waterline length of 32 feet and a beam of six feet. There are many boats of this type now in existence which will be eligible for the race next summer. The existing rules for the Sweepstakes, as will be remembered, limited competing boats to 1,350 cubic inches maximum piston displacement with 25 feet minimum waterline length and five feet minimum beam.

Another departure made in the Sweepstakes rules for the 1924 event, is the changing of the awards from \$25,000 in

cash, as in the 1923 race to a suitable trophy to go to the winner and \$5,000 in expense money which will be divided pro rata among all boats finishing the race. In addition, every contestant completing the course will be awarded a flag showing his position. The future races will be held under the rules of the American Power Boat Association.

The first big event of national importance to be held this year after the Motor Boat Show will be the Annual Regatta at Miami and Miami Beach, on March 7 and 8. Already, twenty-two entries have been received for the runabout and hydroplane classes which is the largest number of entries of boats of this kind ever received for a race anywhere.

The Sweepstakes class will be held at Miami, and this class will be open to displacement boats of over 25 feet in length powered with motors of not over 1,350 cubic inches, as well as open to displacement boats of over 32 feet in length, provided with larger engines.

Up to the present time, entries for this class have been received from Webb Jay of Chicago, who will enter his Adieu II; Horace Dodge of Detroit who will race his Musketeer; Colonel E. H. R. Green of Terrell, Texas, who has entered Mary; Edsel B. Ford's entry of a new boat known as 999; Adieu I, entered by J. A. Mellish of New York; Peerless Irene, by Victor A. Seales of Atlantic City; Shadow VI Jr., entered by G. M. Heckscher of New York; Sue J, a Liberty-powered craft, also entered by Webb Jay, and Baby Cub, entered by Howard Lyons of New York. Two heats of forty miles each will be held at four o'clock on the afternoons of March 7 and 8 for this class. Boats to compete must qualify at forty m.p.h.

Four hydroplanes from Peoria, Illinois, which qualified under the rules of the Mississippi Valley Power Boat Association in the 725 cubic inch class will race at 3:25 P. M. on the afternoons of March 7 and 8 over a twenty-mile course. The entries received in this class

are Elanar, owned by W. H. Ruhaak; Meteor VI and Meteor VII, both owned by Commodore W. B. Wilde, and Docs, by L. R. Van Sant, all from Peoria. The qualifying speed for this class is fifty miles an hour, although all the boats entered have records of better than a mile a minute. There is no doubt but that this class will provide thrills, the likes of which have never been seen at a Miami Regatta.

In the gentleman's runabout class, which is open to displacement boats of over twenty-five (Continued on page 232)

Important Fixtures, 1924

January 4-12—Motor Boat Show, Grand Central Palace, New York, N. Y. Open daily, except Sunday, 10:30 A. M. to 10:30 P. M.

Activities During the Week of the Motor Boat Show

Waterway League	Monday, Jan. 7, 8:00 P. M.
R. C. Meeting	Tuesday, Jan. 8, 2:00 P. M.
R. C. Dinner	Tuesday, Jan. 8, 10:45 P. M.
S. A. E.	Wednesday, Jan. 9, 10:00 A. M.
A. P. B. A. Council	Wednesday, Jan. 9, 2:00 P. M.
A. P. B. A. General	Wednesday, Jan. 9, 8:00 P. M.
N. A. E. & B. M.	Thursday, Jan. 10, 10:45 P. M.
U. S. Power Squadrons	Saturday, Jan. 12, 3:00 P. M.

February 21 and 22—Regatta of Palm Beach Yacht Club, Palm Beach, Florida.

March 7 and 8—Annual Southern Regatta, Flamingo Course, Miami and Miami Beach, Florida. (All races two heats.)

2:00 P. M.—Express Cruisers, 10 miles.

2:35 P. M.—Gentlemen's Runabout Class, 30 miles, open to displacement boats of over 25 feet in length powered with motors of not over 825 cubic inches piston displacement. (Qualifying speed: 35 m.p.h.)

3:25 P. M.—Hydroplane Class, 20 miles, open to hydroplanes with motors of not over 725 cubic inches. (Qualifying speed: 50 m.p.h.)

4:00 P. M.—Sweepstakes Class, 40 miles, open to displacement boats of over 25 feet in length powered with motors of not over 1,350 cubic inches and displacement boats of over 32 feet in length. (Qualifying speed: 40 m.p.h.)

March 15 and 16—Regatta of Habana Yacht Club, Havana, Cuba. (Same classes as at Miami.)

Tuesday evenings, January 15 to March 18 inclusive, free illustrated lectures on Piloting, Seamanship and Small Boat Handling at the New York Athletic Club, 59th Street and Sixth Avenue, New York City, under the auspices of the United States Power Squadrons.

Monday evenings, January 21 to March 24 inclusive, free illustrated lectures on Piloting, Seamanship and Small Boat Handling at 8 P. M., Naval Reserve Armory, New Rochelle, N. Y., under auspices of Huguenot Power Squadron.

April 25-27—Regatta New Orleans Speed Boat Association, Lake Pontchartrain, La. Mississippi Valley Power Boat Association.

June 20-22—New York to Atlantic City and return race. Columbia Yacht Club, New York, N. Y.

June 28—Express Cruiser Championship of America, Middletown Yacht Club, Middletown, Conn.

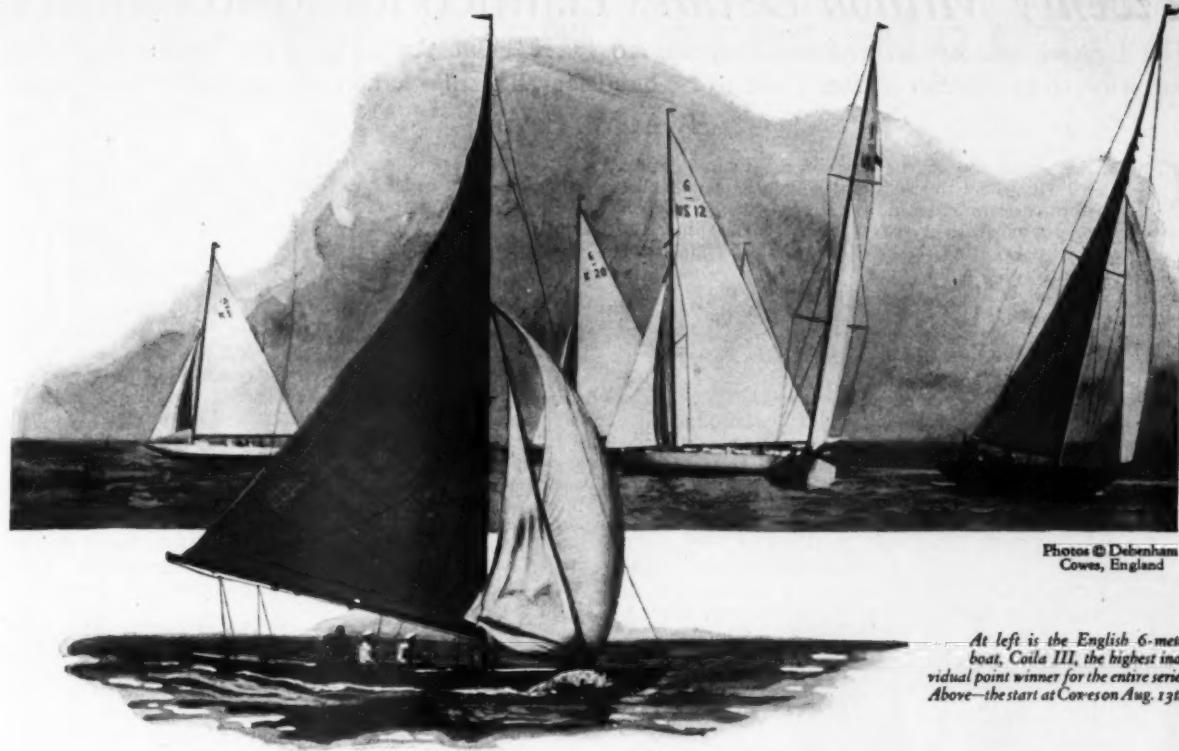
July 3-6—Annual Regatta, Mississippi Valley Power Boat Association, Oshkosh, Wis.

July 4-5—Handicap Cruiser Championship of America, Shelter Island Yacht Club, Shelter Island, N. Y.

July 27-Aug. 3—Chicago Regatta.

August 14-16—Annual Regatta of Buffalo Launch Club, Buffalo, N. Y.

August 30-Sept. 1—Annual Gold Cup Regatta, Detroit Yacht Club, Detroit, Mich.

Photos © Debenham
Cowes, England

At left is the English 6-meter boat, *Coila III*, the highest individual point winner for the entire series. Above—the start at Cowes on Aug. 13th.

All Eight Boats in the International Six-Meter Race were Valsparred!

One of the greatest tributes ever paid to an American product is the fact that every one of the eight boats—British and American alike—that took part in the International Races at Cowes, England, last August was Valsparred.

This was, indeed, unusual proof of Valspar's unquestioned superiority.

This fine, sturdy varnish gives absolutely dependable protection against water and weather. After months of service on a hull or deck, it still gleams bright and smooth; and no amount of fog, salt

spray or rain can ever turn it white. Valspar's toughness and waterproofness have won it an unequalled international reputation. On Solent or Sound the best boats are varnished with Valspar.

* * *

Some confusion has arisen concerning the varnish used on the 6-meter boats in the International Races held last August at Cowes, England.

To clear up any misunderstanding, we are glad to publish the facts in the case, which are given above.



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Twenty Million Dollars Planned for Motor Boats

The United States Government Proposes to Have Built 203 Large Fast Motor Boats In Addition to 91 Smaller Faster Craft to Be Used for The Enforcement of The Prohibition Laws

By A. W. Payne

GREAT expansion of the fleet of the United States Coast Guard by the addition of a large number of motorboats and steam craft, to enable perfect patrolling of our more than 10,000 miles of coast line, for the purpose of preventing smuggling, especially liquor running, apparently is assured.

The Coast Guard has been busy for several weeks drawing up its plans for a motorboat fleet, and the general approval which it has received in its endeavor was capped by President Coolidge, in his first message to Congress in December, when he said:

"The prohibition amendment to the Constitution requires the Congress and the President to provide adequate laws to prevent its violation. It is my duty to enforce such laws. For that purpose a treaty is being negotiated with Great Britain with respect to the right of search of hovering vessels. To prevent smuggling, the Coast Guard should be greatly strengthened, and a supply of swift power boats should be provided."

The plans of Rear Admiral Reynolds, Commandant of the Coast Guard, had previously received the approval of both the President and Secretary of the Treasury Mellon. With the endorsement of the Chief Executive, according to General H. M. Lord, Director of the Budget, the desired appropriations would be approved by his office, and there only remains the requisite action by Congress.

Appropriation of \$20,000,000 for building the new fleet and to provide for its operation during the remainder of the present fiscal year, and \$8,500,000 for manning and operating them during the fiscal year beginning next July 1, will be asked. These sums are in addition to the regular appropriation for the present organization of the Coast Guard. While it is not yet known in what form the appropriation will be drawn up, it is expected it will be either as a separate bill, or as a rider to some other measure in the form of a deficiency appropriation.

The Coast Guard fleet now includes a total of about 90 vessels, of which about 75 are in commission. Twenty-six of these are steam cruising cutters. But with a number of the latter used seasonally on the ice patrol; others on the fisheries patrol; with still others used solely for boarding vessels in harbors or employed in other harbor work; and the usual number laid up for docking or repairs, it can be seen that even this small complement is never always entirely available for coast patrol.

The new program will increase the fleet several fold. Construction of 18 and purchase of two other steam cruising cutters will be asked, and funds for the construction, manning and operation of 203 large cruising motorboats and 91 smaller, faster craft.

Coast Guard officers have been inspecting shipbuilding plants along the Atlantic Coast for several months, surveying the facilities for building the new craft when they are authorized. Plants of engine building companies have also been inspected. While the specifications for the new vessels have not yet been completed, it is known that the Coast Guard will design them especially for its use. It is planned

to have as large a number as possible built at one time in many yards, in order to get the fleet in the water quickly.

The 203 steam cutters will follow the lines of the present type, but will be turbo-electric driven. An average cost of \$600,000 is estimated for the 18. Two others will be purchased from the Navy and rebuilt at slight expense for the service.

The 203 motor cruisers of the larger class will be built at an estimated cost of \$37,500 each. Present plans call for twin-motored boats from 65 to 80 feet over-all length, with accommodations for crews of six, ability to stand the roughest weather, of wood construction, and armed with a single one-pounder. These vessels will be designed to stay at sea for long periods, patrolling designated portions of the coast and on the Great Lakes. They will receive fuel and supplies from nearby stations on certain patrols; but on others far from larger ports, the new steam cutters will be stationed at various points to act as mother ships. The 203 will be fast cabin cruisers, but not especially speed boats, just fast enough to catch the ordinary smugglers. The Coast Guard, naturally, is keeping secret the estimated speed to be developed.

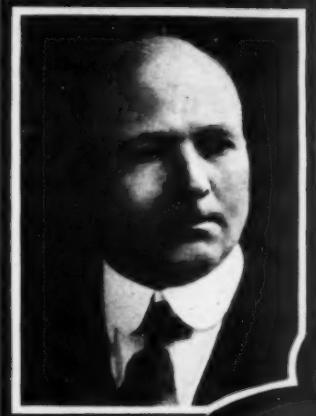
The 91 smaller craft will be faster, and possibly of the Seabright dory type. They will operate generally around harbors and will be held in readiness to act against the swift motorboats with which the rum runners have equipped themselves. They, too, will be armed. It will be their duty to intercept smaller shipments being landed from the larger craft. Their estimated speed and size, also, will be kept secret—as long as possible, at any rate.

It is emphasized by Treasury officials and officers of the Coast Guard that this move is in no sense the crystallization of plans made last spring by prohibition officials for a prohibition navy. The vessels are to prevent smuggling, and there is other smuggling than that of

liquor—narcotics on the Northwest coast, and aliens, especially Chinese along the Gulf and Florida coast, in Southern California, and around Puget Sound, for instance. However, rum is contraband, and naturally the expanded fleet is to cope with rum runners as part of that duty. It is pointed out that the Coast Guard was originally organized, a century and a third ago, to prevent smuggling. In succeeding years smuggling greatly diminished and the Guard was given other jobs to do, so, that, until a couple years ago, prevention of smuggling had come to be a minor job. The present action is a return to the Coast Guard's original work.

Additional crews of 464 commissioned and warrant officers and 3,000 enlisted men will be needed to man the new boats, a total almost equal to the entire present strength of the service. With this force and the equipment designed, if the Coast Guard is permitted its full appropriations and allowed to go through with its present plans, its officers emphatically declare they will be able to stop practically all smuggling by sea, whether it be of liquor or anything else. And this will include the entire coast, from Maine to the Rio Grande, from Southern California to Puget Sound, and along the Great Lakes.

Ole Evinrude's
Master Motor

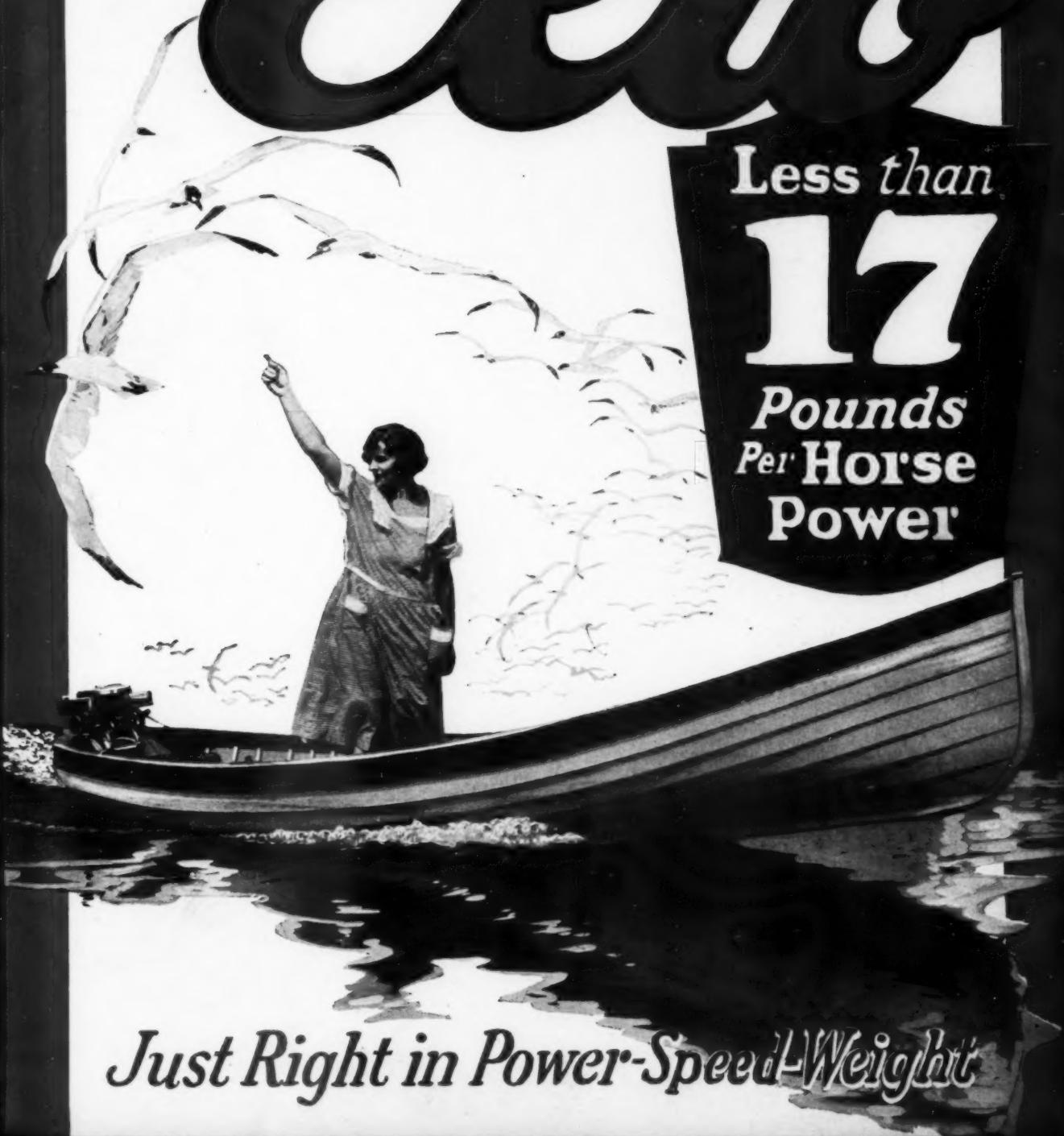


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IT was Ole Evinrude, marine engineer and yachtsman, who founded the outboard motor industry. It was Ole Evinrude, with his fingers ever on the pulse of the outboard motor market, who was *first* to bring out the "light twin" motor three years ago. Today it is Ole Evinrude who offers you in the Elto Twin, not only "the *lightest* motor for its horse power," but these 16 other outstanding advantages that make outboard motor use a real pleasure and satisfaction.

The "16 Feature" Motor

- 1—One half more power—(Full 3 H. P.)
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- 3—The *fastest* outboard motor in the world, as proved by official National and International Races.
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- 12—Improved carburetor—no bothersome flooding as with "float feed" type.
- 13—Only motor with full floating type drive shaft. Impossible to throw shafts out of alignment.
- 14—Stream-line under water design makes weed-collecting almost impossible.
- 15—Only motor that can be steered to landing place easily after motor is shut off.
- 16—Safest motor in rough seas. The "Fin-Keel" design steadies boat and holds its course while the "extra Horse Power" insures speed and sea-bucking safety.

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Light Twin

by Ole Evinrude

ONLY the ELTO Light Twin offers the Yachtsman and Launch Owner the extra power and greater speed his requirements demand.

When the trip to shore can be made lazily, leisurely and in smooth seas, any motor will do, but being accustomed to cruiser power and speed, you will hardly find patience with any motor that does not give you the "half more power" and the racing speed of the ELTO 3 H. P. Twin. It is

The Powerful Motor of the Light Weight Class

You will use your outboard motor as a means of convenience, labor saving and time saving. The ELTO most fully and satisfactorily meets these three requirements. It will drive your dinghy or tender safely through heavy seas. It will leap ahead at spray-throwing speed. It will land you quickly and easily without effort, because it has "safe rudder steering."

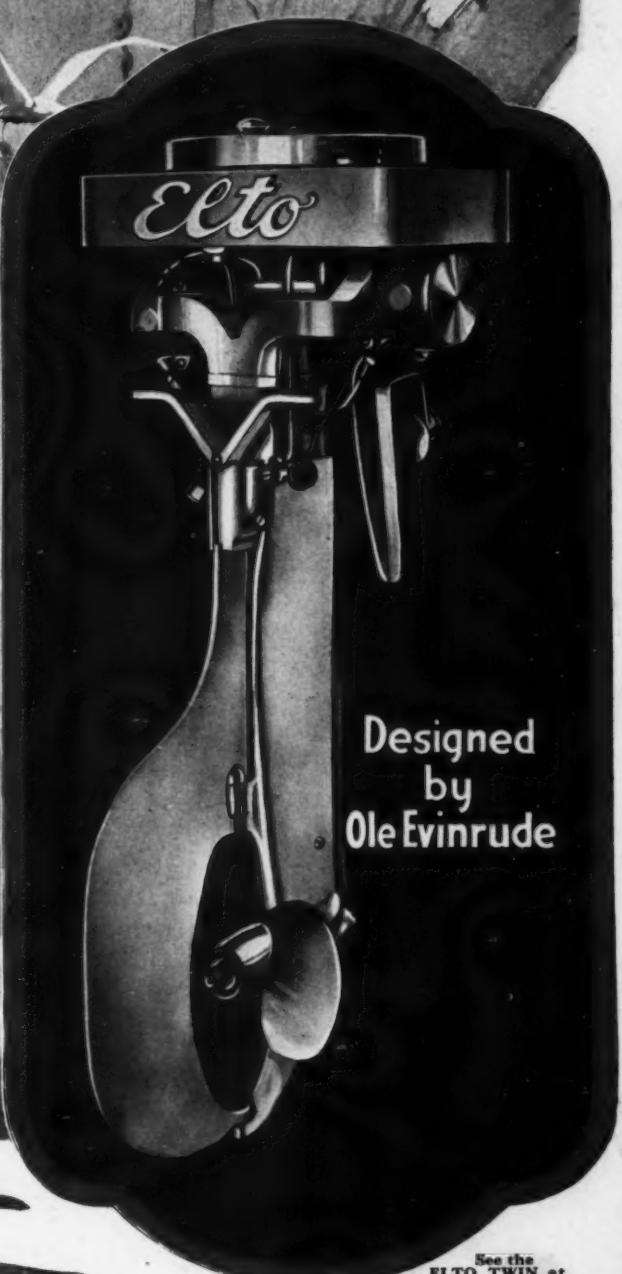
The "Sailor-Made" Motor

Ole Evinrude more than any other individual in the outboard motor industry knows from first hand cruising experience the yachtsman's need. And in a far greater measure than any other maker of outboard motors, he has met every requirement in the ELTO 3 H. P. Fast Light Twin.

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ELTO OUTBOARD MOTOR CO.

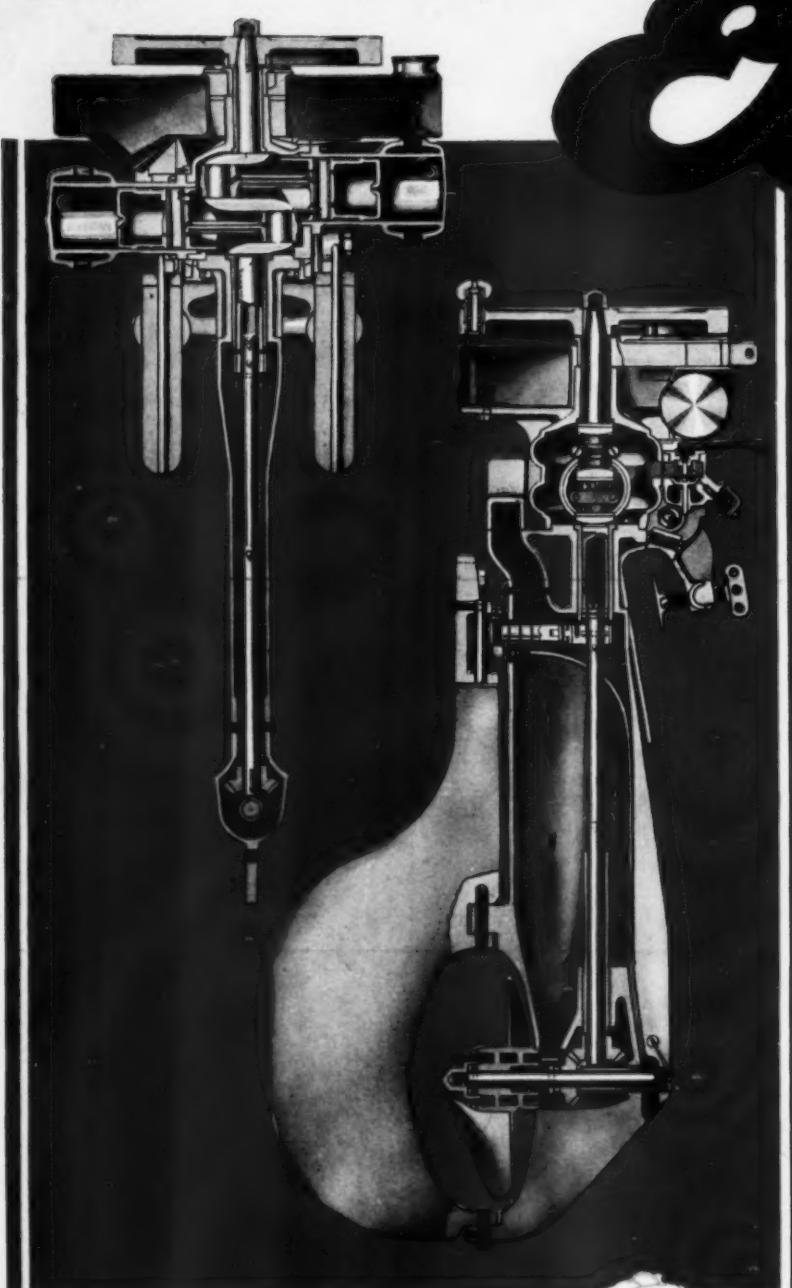
Manufacturer's Home Building
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ELTO TWIN at
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The *Fastest* Light Twin

These 10 Mechanical Features Give the Elto Twin Extra Long Life

- 1 Crank case and main frame each a single casting, doing away with innumerable joints and troublesome packing. A vibration proof structure.
- 2 Piston rings wide enough to span ports—a guarantee against ring wear and breakage.
- 3 Adjustable renewable bronze bushed bearings. Twenty-three square inches of bearing surface. More than double the bearing area of any other light weight motor.
- 4 Crankshaft of special high grade steel drop-forging case hardened and ground.
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- 6 Offset cylinders instead of offset connecting rods, doing away with side thrust which otherwise distorts bore, destroys compression, decreases power, and compels cylinder re-boring or replacement.
- 7 Positive cooling. Flared intake of waterlead acts as scoop and makes pump self-priming and insuring continuous forced circulation.
- 8 Full floating type drive and propeller shafts case hardened. Twist proof main aluminum frame takes all shocks of striking under water obstacles, preventing all damage to drive shaft and other working parts.
- 9 Under water exhaust eliminates entirely exhaust odors and oil dripping.
- 10 Safe Rudder Steering. Rudder folds and locks for carrying, giving motor dimensions $9\frac{1}{2} \times 13\frac{1}{4} \times 36$ in. Balances perfectly for easy handling.

The motor you can trust without fear of accident from overturned boat—because it has "Safe Rudder Steering."

The new catalog fully describing The Elto Twin—Ole Evinrude's "Master Motor" will be mailed to you free upon request.

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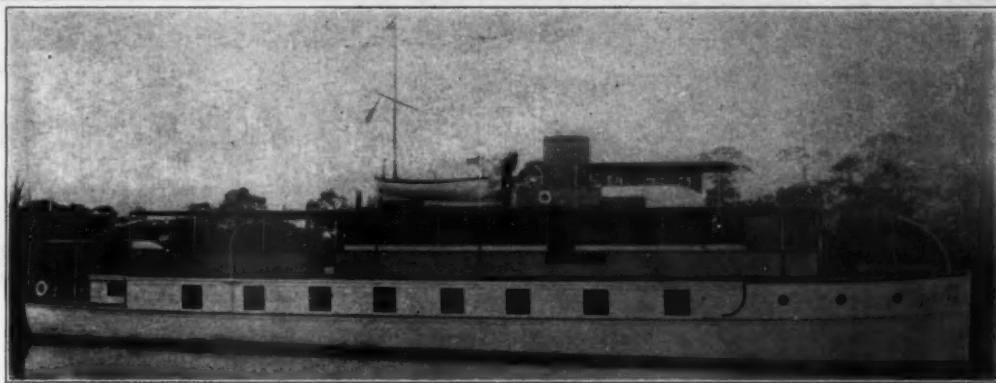
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COX & STEVENS

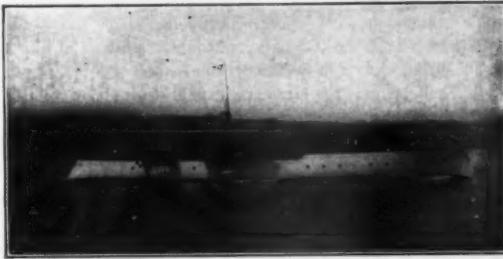
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NAVAL ARCHITECTS—MARINE INSURANCE—YACHT BROKERS
25 BROADWAY, CUNARD BUILDING (Morris Street Entrance), NEW YORK

On this page are shown a few representative yachts selected from our large lists. Should none appeal kindly acquaint us with your requirements. Full information regarding costs to build, purchase or charter yachts of all types gladly furnished.



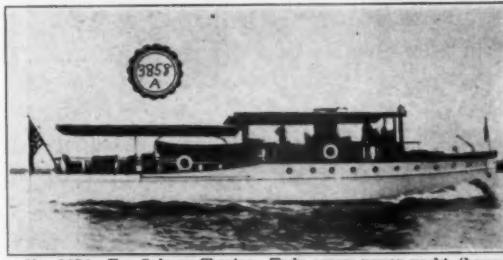
No. 4233—For Sale or Charter—Practically new, twin screw motor houseboat, 100' x 20' x 3' draft. Speed 10-11 miles. Exceptional accommodation includes five staterooms, three bath and toilet rooms. Dining room and library in deckhouse. Tastefully furnished throughout. Large deck space. Best large houseboat available in Florida waters. Cox & Stevens, 25 Broadway, New York.



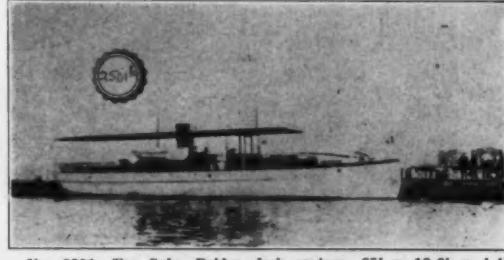
No. 979—Bargain—Especially desirable 98' Lawley built twin screw cruising power yacht. Speed up to 16 miles; Standard motors. Deck dining saloon, three double and one single staterooms, two bathrooms, etc. Teakwood deck house and deck trim. New furnishings throughout. Cox & Stevens, 25 Broadway, New York.



No. 2017—For Sale or Charter—Exceptionally roomy twin screw Mathis motor houseboat, 77' x 18.6' x 3.6' draft. Speed 10 miles. Two 6 cylinder 80 H.P. motors. Large dining saloon in deckhouse; four staterooms, bath and two toilets below. Splendid deck space. No expense spared in upkeep. Large amount spent on permanent improvements quite recently. Quick action will secure biggest value offered yacht this type and size. Cox & Stevens, 25 Broadway, New York.



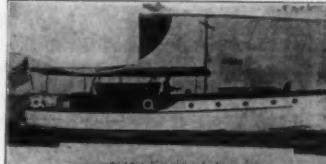
No. 3858—For Sale or Charter—Twin screw power yacht (houseboat type), 62' x 15.6' x 2.6' draft. Speed 10-12 miles. Two 25/55 H.P. motors, controlled from bridge. Accommodations include saloon with two berths, one double and two single staterooms, bath and three toilets, etc. Fully equipped. First-class condition. Cox & Stevens, 25 Broadway, New York.



No. 2501—For Sale—Bridge deck cruiser, 65' x 12.6' x 4.4' draft. Speed up to 12 miles. 50 H.P. motor. Saloon with two transoms, double and two single staterooms, toilet room, galley, etc. Interior finish selected mahogany and white enamel. Price low. Cox & Stevens, 25 Broadway, New York.



No. 2714—FOR SALE—Immediate delivery, roomy 62 ft. cruising power yacht. Speed 11 miles; 60 H.P. motor, double staterooms, two saloons, bath and toilet room. Excellent condition. Bargain. Cox & Stevens, 25 Broadway, New York.



No. 2830—For Sale—Attractive 50' bridge deck cruiser in excellent condition. Two cabins, large afterdeck. Equipped with 50 H.P. heavy duty motor. Speed 11 miles. In commission. Cox & Stevens, 25 Broadway, New York.



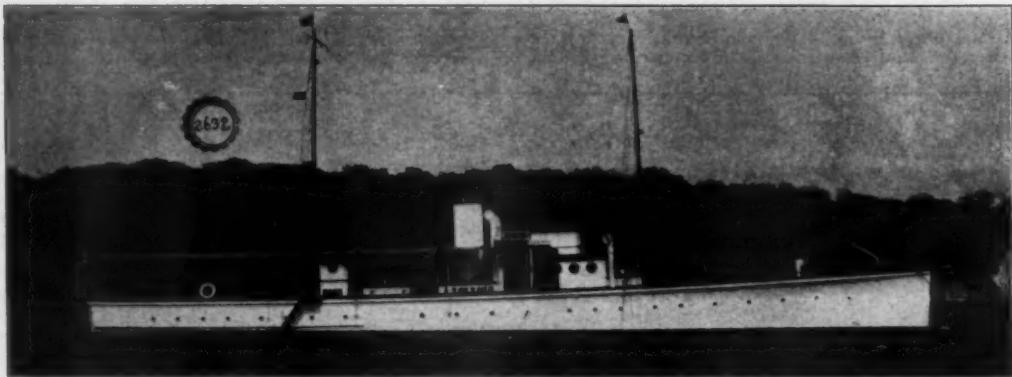
No. 4314—For Sale—40' V bottom, bridge deck cruiser. Excellent seagoing and very well constructed. Speed up to 15 miles. Large deck space with enclosed bridge from which motor is controlled. Price attractive. Cox & Stevens, 25 Broadway, New York.

PLANS, PHOTOGRAPHS AND PRICES ON REQUEST

NAVAL ARCHITECTS

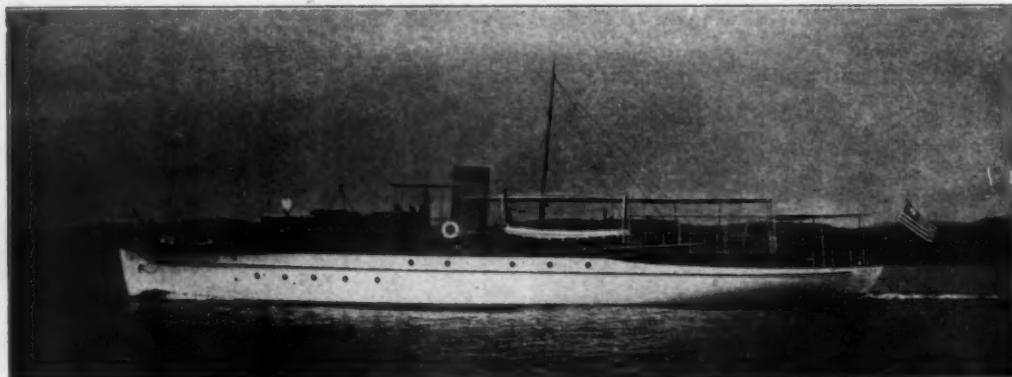
COX & STEVENS

YACHT BROKERS



No. 2632—Attractive Bargain—(Might Charter)—Fast, seagoing, twin screw cruising motor yacht; 127 ft. 6 in. overall, 17 ft 6 in. beam, 6 ft. draft. Completed Fall 1919. Speed up to 23 miles; powered with four 220 H.P. 6 cyl. Standard air-starting and reversible motors (two set tandem on each shaft). Moderate fuel consumption at 12 to 15 knots speed. Cruising radius nearly 2,000 miles on fuel capacity. Electric lights (two independent plants), wireless plant. Very heavily constructed. Dining saloon on deck; guest's double stateroom forward; machinery amidships; aft is owner's double stateroom with private bathroom, also another guest's double stateroom, lounge room with berth and guest's bathroom. Splendid deck space; deck shelter aft of amidships. An unusual craft, embodying seaworthiness, speed, attractive appearance and comfort. Low figure will be accepted for immediate sale owing to owner's inability to use. For plan, further particulars and inspection apply to

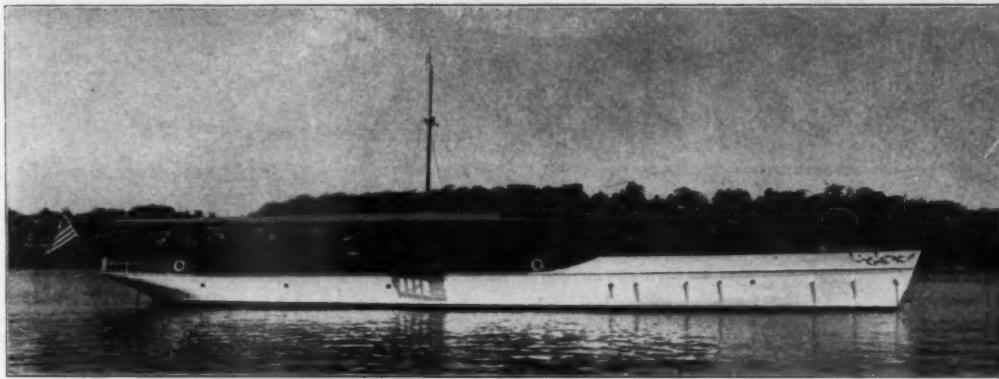
COX & STEVENS
25 BROADWAY, NEW YORK
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No. 1835—Excellent Bargain—(Might Charter)—Handsome, twin screw cruising motor yacht; 98 x 16.6 x 4.6 ft. Speed 13-14 miles; powered with two 125/150 H.P. 6 cyl. Standard air-starting, reversible motors. Winton independent electric lighting plant. Large deck dining saloon with two Pullman berths, and galley forward; aft are two double and two single staterooms and two bathrooms. Mahogany deckhouse and deck trim. Interior mahogany and white. Exceptionally large deck space. Excellent sea boat. Particularly low figure accepted for quick sale. For plans and further information apply to

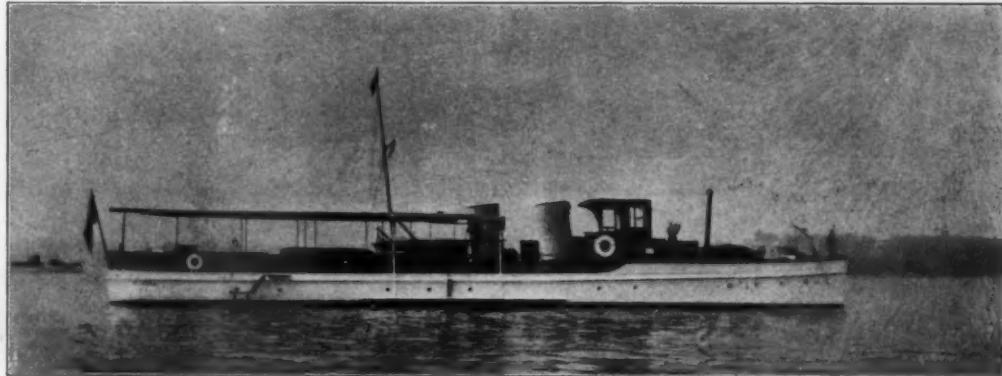
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NAVAL ARCHITECTS COX & STEVENS YACHT BROKERS



No. 1230—For Sale—Fast, twin screw cruising motor yacht; 103 x 14.7 x 4 ft. Speed up to 18 miles; two 6 cyl. Speedway motors. Dining saloon in deckhouse forward; two staterooms, main saloon and two toilet rooms (one with shower bath) aft. Handsomely finished. Considerable sum spent recently for thorough overhaul. Electric lights (independent plant). Construction of highest class. Only available as owner has purchased larger motor yacht through us. Very reasonable figure accepted for prompt sale. For plan, etc., address

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No. 1997—For Sale—Cruising motor yacht of smart appearance; 81 x 12 x 4 ft. Speed up to 14 miles; 100/120 H.P. 6 cyl. 20th Century motor. Electric lights. Dining saloon in sunken deckhouse forward; aft are one double and two single staterooms, saloon with two transoms and toilet room. Very substantially constructed and well kept up. Deckhouse, cabin trunk, etc., of mahogany. Semi-enclosed bridge. Price low. Plan and further information sent upon application to

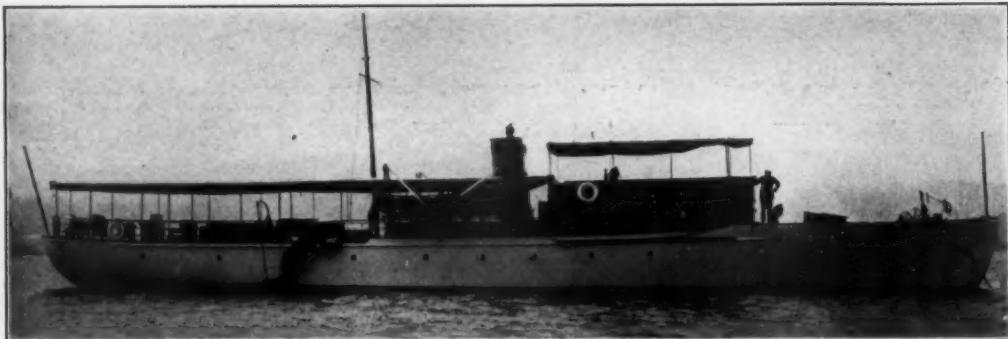
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NAVAL ARCHITECTS

COX & STEVENS

YACHT BROKERS



No. 1798—Exceptional Bargain—Unusually able, fast, flush deck twin screw cruising motor yacht; 105 x 15.5 x 4.9 ft. Speed up to 17 miles; powered with two Standard reversible air-starting engines. Accommodations include dining saloon and galley in deckhouse forward; two double and one single stateroom, vestibule with transom berth and two bathrooms aft. Splendid deck space; sun deck over deckhouse. Deckhouse and deck trim of teakwood. Construction unusually heavy. Considerable sum spent on this yacht during Summer of 1923 for complete overhaul of hull and machinery. Opportunity to secure unusual bargain. Further particulars, plans, etc., from

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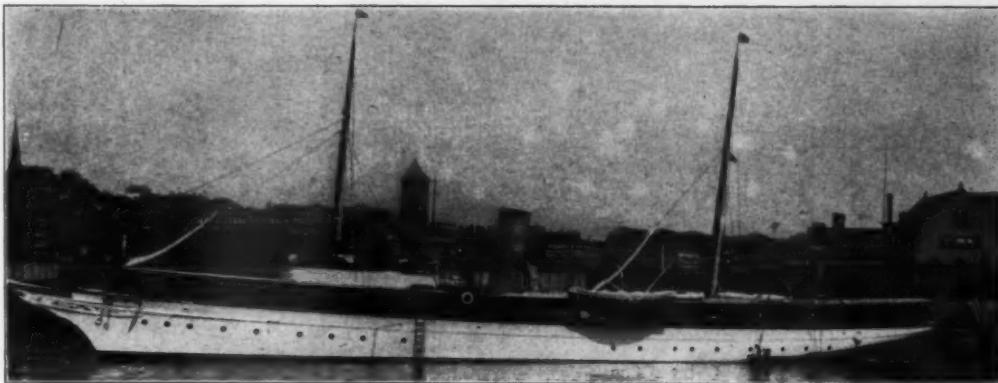
No. 4328—For Sale—Twin screw, express cruiser; 72 x 12 x 3.3 ft. Recent build. Speed up to 30 miles; two 350/400 H.P. Murray & Tregurtha motors. Electric lights. Owner's double stateroom and toilet room forward with direct access to main saloon in forward deckhouse containing two Pullman berths, engine room amidships; next aft is dining saloon accessible from midship deck with two Pullman berths, toilet room adjoining; crew's quarters and toilet furthest aft. Roomy enclosed bridge. Particularly successful boat of her type, combining high speed, unusual seaworthy qualities and good accommodation. Available at specially attractive price for prompt disposal. For plans and further particulars apply to

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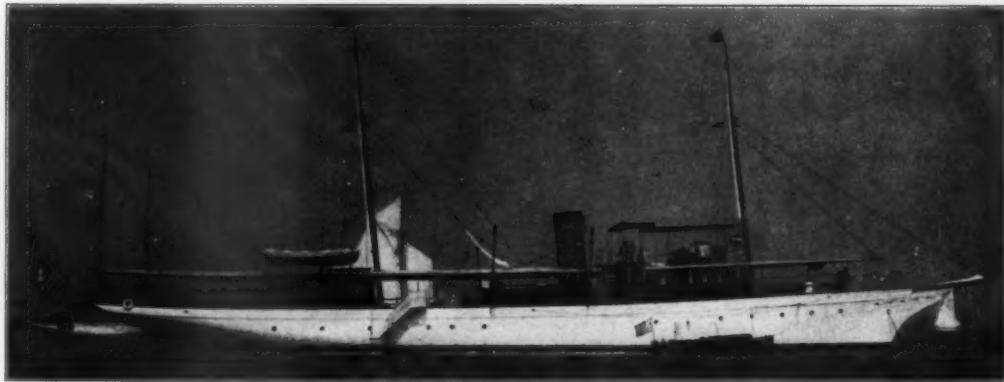
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YACHT BROKERS



No. 4220—Offered by Estate—Especially desirable steel steam yacht; 165 ft. overall, 138 ft. waterline, 18 ft. 5 in. beam, 8 ft. draft. Highest grade construction, finish and equipment. Speed up to 16 miles; triple expansion engine. Seabury build. Forward deckhouse contains dining saloon, pantry, smoking room and toilet room; social hall in after deckhouse with player piano, etc. Below deck aft are owner's suite, consisting of two staterooms with bathroom full width of vessel; saloon with two settees, one double and two single guest's staterooms and guest's toilet room. Electric lights; steam heat. This yacht was built for late owner and always had excellent upkeep. Has not been in war service. Estate will make price particularly attractive to prompt purchaser. Opportunity to secure one of the finest steam yachts in the fleet at bargain figure. For further details, plan, etc., apply to

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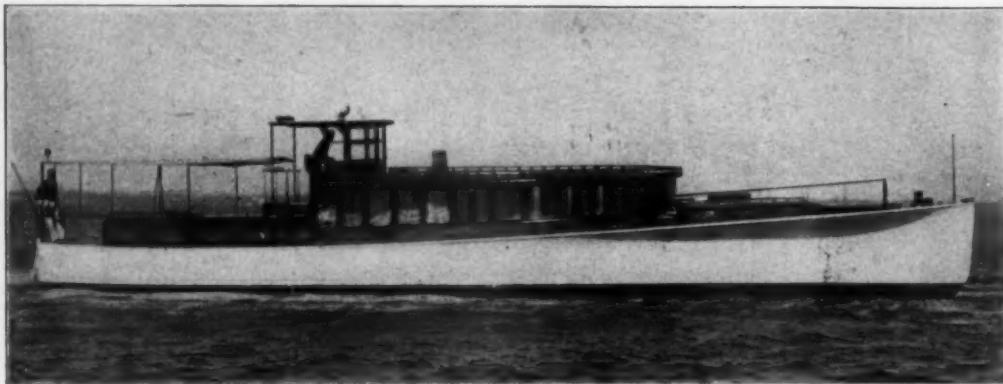
No. 154—For Sale or Charter—One of the handsomest steam yachts of moderate size; 131 x 17 x 6.6 ft. Speed up to 14 knots; triple expansion engine. Highest class construction. All conveniences. Deck dining saloon forward; social hall in after deckhouse. Exceptional accommodation also includes five staterooms, two bathrooms and additional toilet room. Handsomely finished in hardwoods above and below deck. Bargain for quick sale, owner having larger yacht. For plans, price, further particulars and inspection apply to

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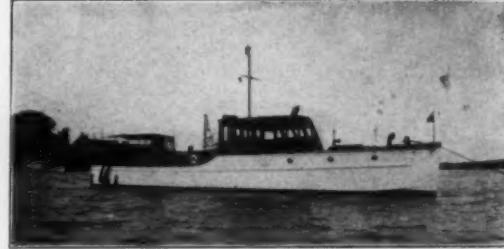
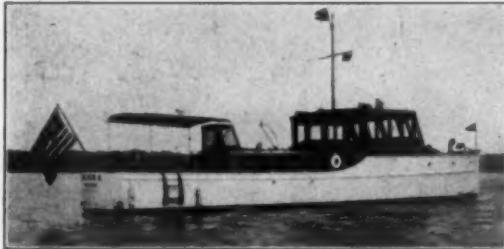
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YACHT BROKERS



No. 4279—For Sale—Especially fine, high speed, twin screw motor cruiser; 72 ft. long, 14 ft. 4 in. beam, 3 ft. 4 in. draft. Built 1921. Adapted for both Florida and northern waters. Hull, double planked with Philippine mahogany. Outboard and interior joiner work black walnut, ceilings ivory. Seven hull bulkheads. Forward cockpit with 8 foot seat. Forward cabin, deck saloon 10 x 11 feet, stateroom, shower bath, 3 toilets, galley aft of owner's quarters, then engine room and crew's quarters. Six berths in owner's quarters; four for crew. Electric refrigerator in galley. Telephone system. Equipment and furnishings complete, except silver. Power equipment: two 12 cyl. Allison motors, 5½" x 7½", 425 H.P. each; 4 cyl. Allison electric plant; 2 large storage batteries and electric bilge pump. Gasoline capacity, 1125 gals. Speed, 30½ miles per hour at 1300 R.P.M. Apply to

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No. 4088—For Sale—High speed, twin screw V-bottom cruisers; 55 x 11 x 2.9 ft. Built 1920. Speed up to 30 miles; powered with two 300 H.P. Sterling Motors (new 1921). Accommodation excellently laid out: toilet room, saloon with two berths and large separate galley forward; double stateroom, toilet room and roomy cockpit aft. Large enclosed bridge with full motor controls. Electric lights. Finished in mahogany and butternut. One of the best boats of its type. Excellent seaboat. Can be purchased at particularly attractive figure for quick disposal on account owner's inability to use her. Further particulars from

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NAVAL ARCHITECTS

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YACHT BROKERS



No. 4235—Sacrifice—Unusually able, fast, twin screw motor cruiser; 110 x 15.5 x 6 ft. Very recent build. Speed up to 17 miles; two 220 H.P. Standard 6 cyl. air starting and reversible motors. Large cruising radius. Large accommodation includes dining saloon in deckhouse forward; below deck forward are large owner's double stateroom with bathroom full width of vessel, one double and one single guest's stateroom each with separate toilet room and saloon with two transoms. Crew's quarters and galley aft. A heavily built cruiser available at figure representing small portion of outlay recently made by owner on this craft, as he has purchased large schooner yacht through us and has no further use for one described above. Opportunity to secure wholesome boat at ridiculously low figure. For plans, etc., apply to

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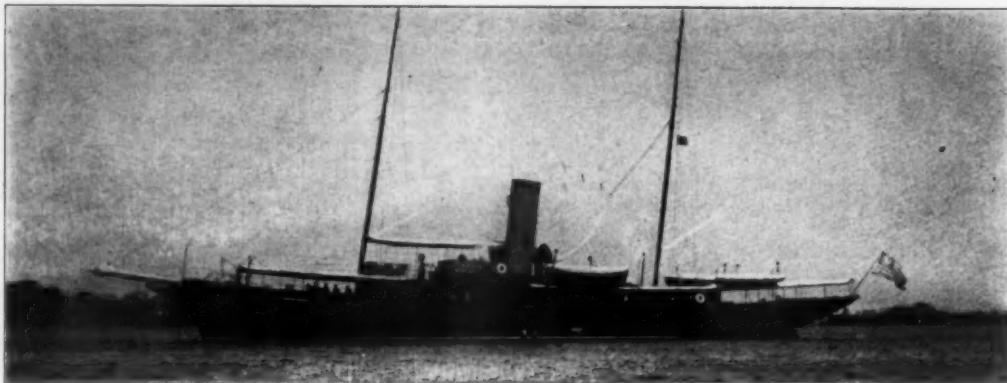
No. 2829—For Sale—Roomy, able schooner yacht; 77 ft. 3 in. overall, 54 ft. 6 in. waterline, 17 ft. beam, 7 ft. 3 in. draft. Lawley built. Arranged so motor can readily be installed (in fact motor of about 20 H.P. was removed several years ago). Unusually large accommodation includes owner's stateroom, three guest's staterooms, large saloon, toilet room, etc. Has had excellent upkeep. Has proven splendid seaboat, having cruised extensively during past. Can be purchased at bargain figure owing to owner's plans preventing further use of craft. For plan, inspection and further details apply to

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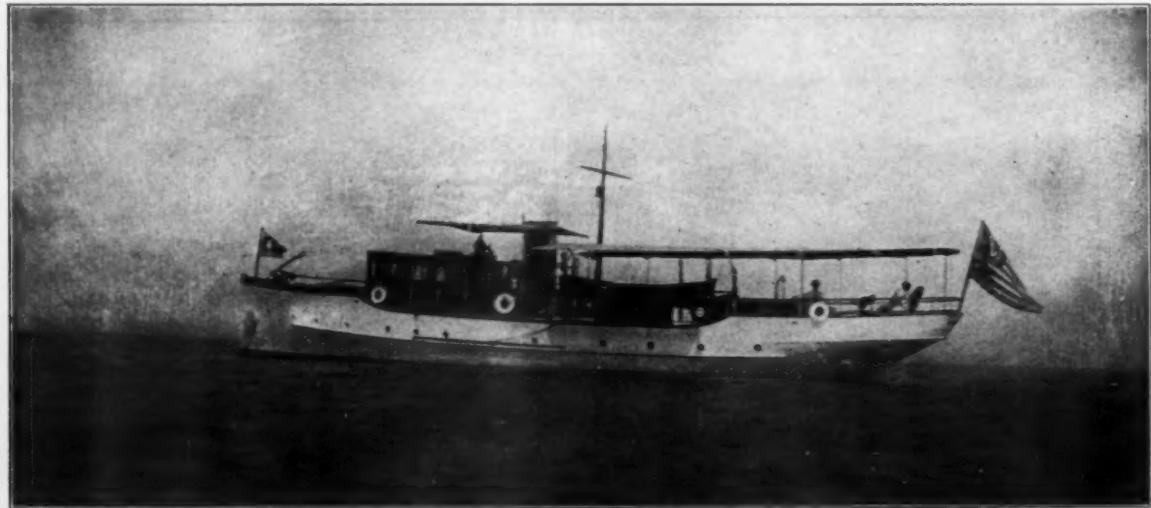
COX & STEVENS

YACHT BROKERS



No. 135—**SACRIFICE**—Steel steam yacht; 170 ft. overall, 135 ft. 9 in. waterline, 21 ft. 9 in. beam, 10 ft. draft. Speed 14 knots. Lawley built. Triple expansion engine. A handsome, able vessel embodying highest class of construction. Teakwood deckhouse and exterior trim. Interior handsomely finished in red and white mahogany. Dining saloon forward with inside passageway to large social hall in after end of deckhouse; two double and four single staterooms, two bathrooms and additional toilet room aft. Yacht has always been considered one of the finest in the country. During past few years has been in service as pilot vessel, only minor alterations having been effected; but can be purchased at such a sacrifice as would warrant placing this fine vessel back to her former position in the yachting fleet, or would be splendid purchase for commercial service. For plans and further particulars apply to

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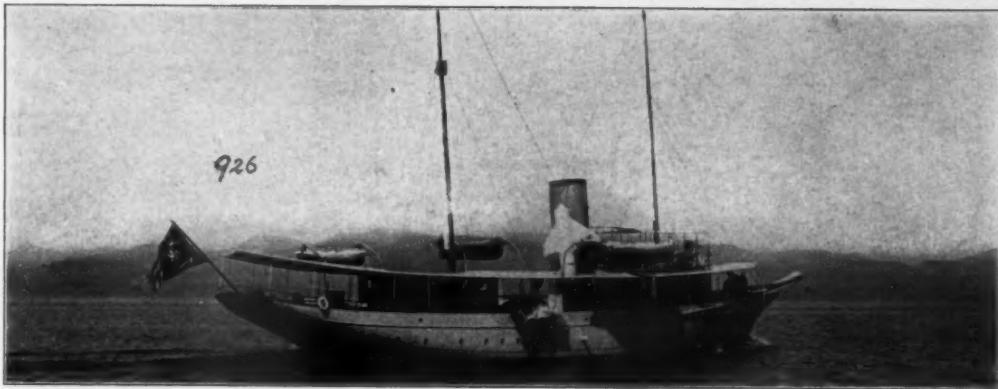
No. 4106—**FOR SALE**—Extremely able cruising motor yacht; 75 ft. 4 in. 4 in. overall, 14 ft. 5 in. beam, 4 ft. 6 in. draft. Speed 11-13 miles; 75/90 H.P. 6 cylinder heavy duty Sterling engine. Winton independent 5 K.W. generating set; hot water heating plant. Dining saloon in deckhouse; two double staterooms, bathroom and main saloon below aft. Exceptional deck space. Mahogany finish throughout. Construction unusually heavy and of the best. Opportunity to purchase splendid seagoing craft in first class condition, fitted with all conveniences, at exceptionally low figure. For plans and further particulars apply to

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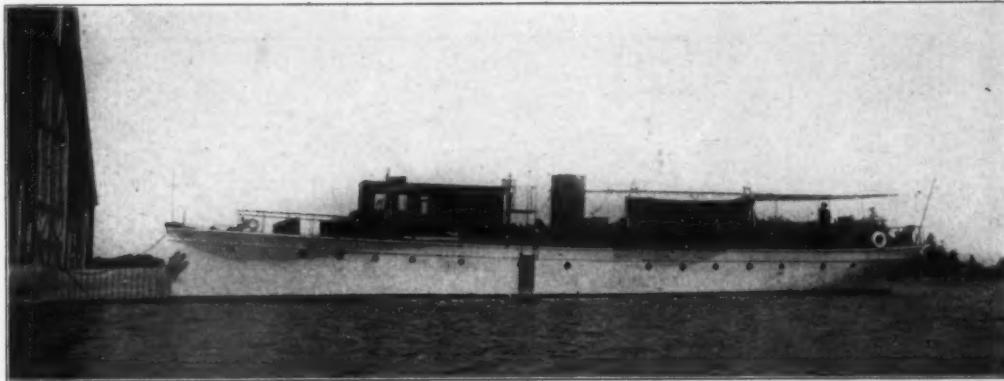
COX & STEVENS

YACHT BROKERS



No. 926—GENUINE BARGAIN—High-class twin screw, steel, steam yacht; 139 ft. overall, 113 ft. waterline, 18 ft. 3 in. beam, 7 ft. 6 in. draft. Designed and built by Seabury. Speed 16 to 18 miles; two Seabury triple expansion engines; two new Almy water tube boilers, used less than six weeks, also new high pressure steam piping. Splendid accommodation; deck dining saloon forward, social hall in after deckhouse with stairway leading to owner's and guests' quarters, consisting of two double and three single staterooms, two bathrooms and additional toilet room. Wash basin in each stateroom. Exterior and interior of deckhouse mahogany; staterooms in hardwoods and white. Handsomely finished. Electric lights, steam heat. Abundant deck space. Equipment includes launch, lifeboat, cutter and dinghy. One of the best yachts of her type in this country. Has had best of care. This craft was not in war service. Opportunity to secure splendid bargain. For plans and further information apply to

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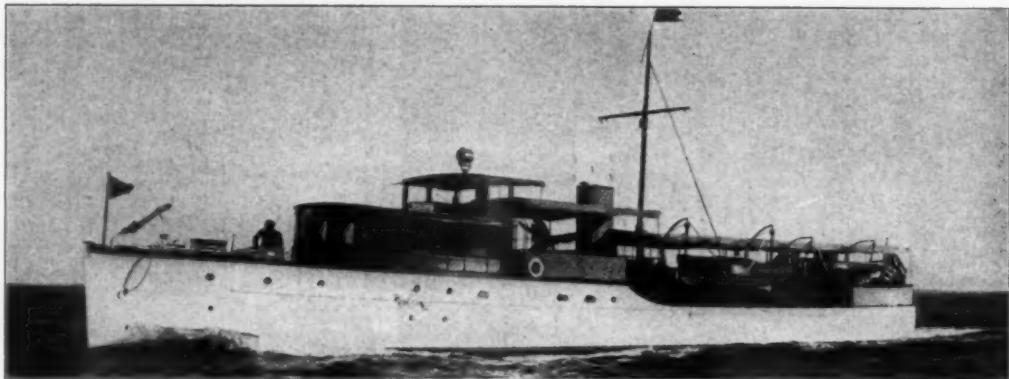
No. 2425—FOR SALE—Seagoing, twin screw motor yacht; 94 ft. overall, 16 ft. 6 in. beam, 4 ft. 6 in. draft. Exceptionally heavy construction from our designs. Speed 11 to 12 miles; two 60/80 H.P. 6 cyl. Buffalo motors. Large cruising radius, economical to operate. Excellent deck space. Deck dining saloon forward, of mahogany, new, 1923,—from which stairway leads to main saloon, 16 ft. x 13 ft., with two long transom berths. Exceptionally large owner's double stateroom aft with bathroom, lobby with transom, and double guest's stateroom with separate toilet room. Unusual headroom. Electric lights (two independent plants). Large fuel and water capacity. Electric windlass. Designed for offshore service. Low figure will be accepted for prompt sale. For further particulars, plan and inspection apply to

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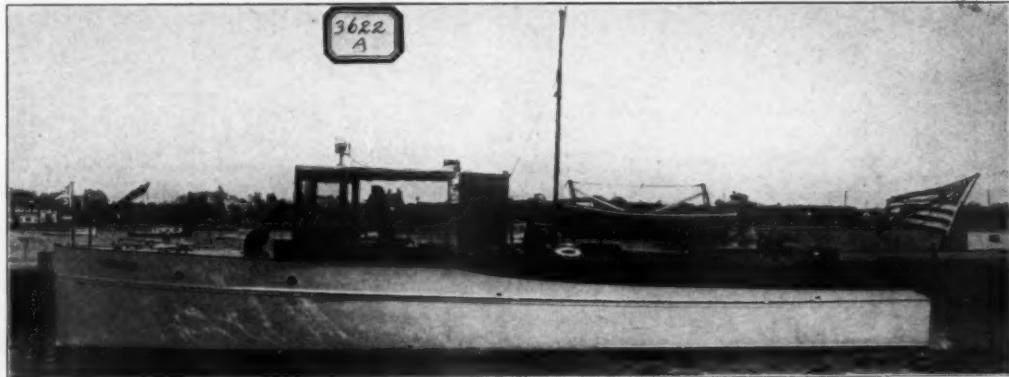
COX & STEVENS

YACHT BROKERS



No. 4164—FOR SALE—Up-to-date, twin screw cruising motor yacht; 93 ft. overall, 15 ft. beam, 5 ft. draft. Built 1921; construction unusually heavy and of highest class. Speed 12 to 14 miles; two 80/115 H.P. Winton motors operating practically noiseless and free of vibration. Excellent accommodation plan:—dining saloon in deck house forward, also large galley; engine room amidships, aft of which is owner's bathroom full width of boat, followed by owner's stateroom with two wide berths; next aft is main saloon with fireplace, upholstered settee, etc.; guest's single stateroom with toilet room opposite; furthest aft is guest's double stateroom with two comfortable berths. Good locker space. Electric lights. Interior finished in mahogany and ivory enamels. Excellent ventilation. Semi-enclosed bridge; roomy after deck. An able, handsome, comfortable cruiser; hull double planked. Economical to operate. Unquestionably the most desirable power yacht approximating her dimensions. Available at attractive price to immediate purchaser. For plans and further particulars apply to

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No. 3622—FOR SALE—Especially desirable high speed twin screw cruiser; 48 ft. 6 in. overall, 10 ft. 4 in. beam, 3 ft. 6 in. draft. Lawley-built in best manner. Speed up to 28 miles; two 175/200 H.P. 6 cyl. Sterling motors (G-R model). Electric lights. Accommodation includes double stateroom with toilet room forward; engine room amidships; aft is saloon with two Pullman berths, toilet room and galley. Interior finish mahogany and white enamel. Exterior joiner work of teakwood. Roomy bridge with full motor controls. Good-size cockpit aft. An exceptionally able, substantial craft of her type and size. Opportunity to secure remarkable value in high class proposition as owner is anxious for prompt sale.

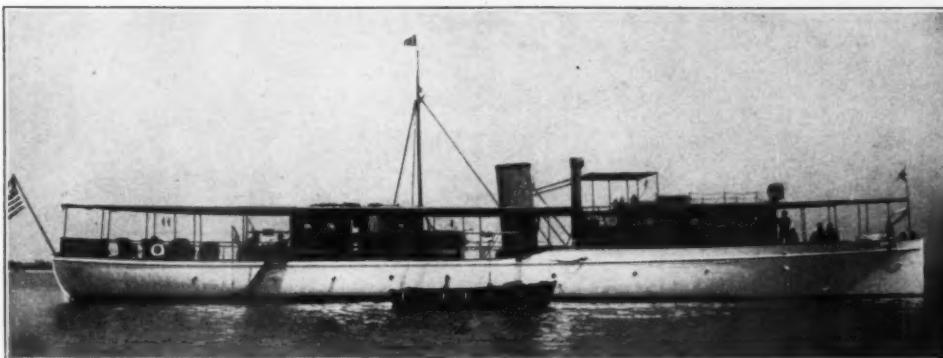
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NAVAL ARCHITECTS

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YACHT BROKERS

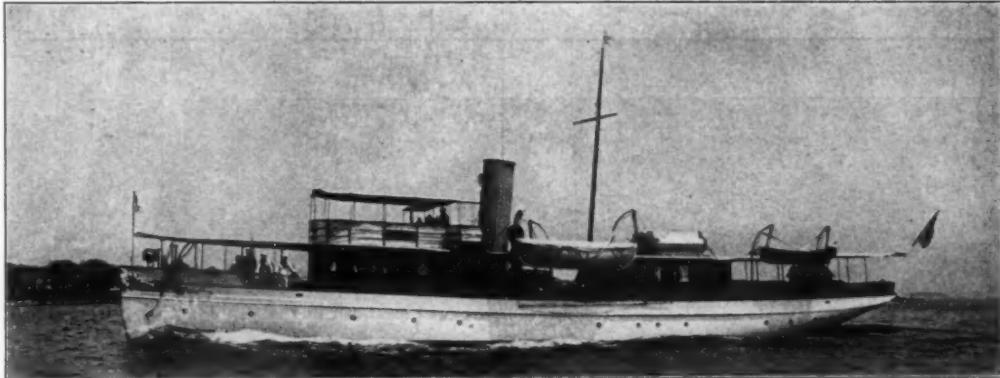
FAST, ABLE, EXCEPTIONAL ACCOMMODATION



112-Foot Lawley-Built, Cruiser, with Two 220 Standard Engines H.P. -

1250—FOR SALE—Especially desirable, able, fast twin-screw cruising power yacht; 112 ft. overall, 15.6 ft. beam, 5 ft. 8 in. draft. Lawley built; speed up to 16 miles; two 220 H.P. 6 cyl. air starting and reversible Standard gasoline motors (used one season). Fitted with all conveniences, including Winton Independent generating set (new 1922); hot water heating plant, etc. Deckhouse and deck trim of teak wood. Accommodations exceptionally large, consisting of deck dining saloon forward, social hall in after deckhouse; two double, three single staterooms, bath and two toilets below aft. Sleeping accommodations for eleven besides crew. Interior mahogany and white enamel. Very best construction. Last year about \$25,000 spent on improvements and replacements. Unusually complete equipment, including motor tender and dinghy. Attractive opportunity to secure exceptional value as owner has acquired larger vessel. For plans, further particulars and inspection apply to

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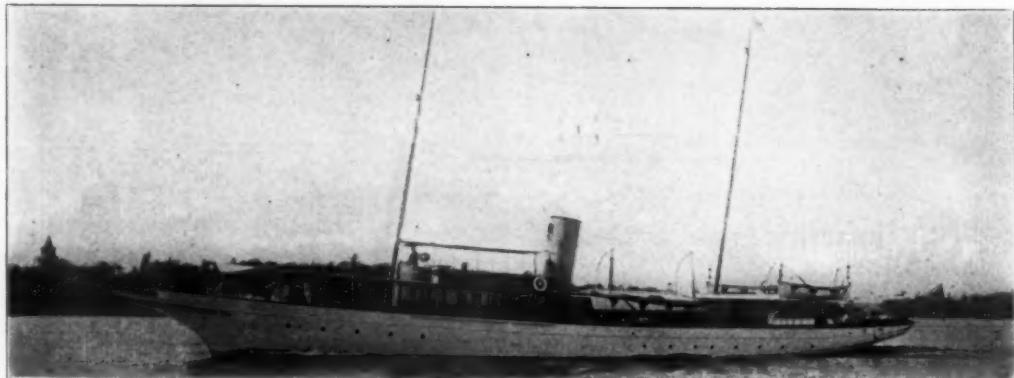
No. 4364—FOR SALE OR CHARTER BY ESTATE—Commodious twin-screw steam yacht; 114 ft. 4 in. overall, 98 ft. waterline, 19 ft. 6 in. beam, 6 ft. draft. Speed 11-12 miles; two triple expansion engines; Almy water tube boilers. Electric lights. Extremely economical to operate and comparatively light draft makes practically all harbors accessible. Forward deckhouse contains dining saloon and pantry; living room in after deckhouse with stairway leading to quarters below, consisting of two double and two single staterooms and two bathrooms. Sleeping accommodations for from eight to twelve persons in owner's party as may be desired. Officer's and crew's quarters and galley forward. Excellent deck space. Very comfortable, heavily constructed yacht which has had exceptionally good care, and can be purchased or chartered at figures which makes her most attractive proposition available in craft of her type and size. For plans and further particulars apply to

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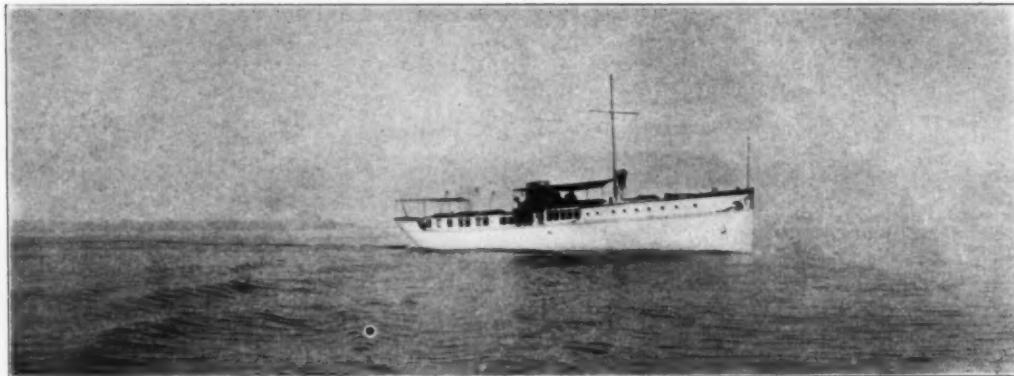
COX & STEVENS

YACHT BROKERS



No. 57—FOR SALE—Particularly desirable, exceptionally fast, steel steam yacht; 145 ft. overall, 117 ft. waterline, 17 ft. 3 in. beam, 7 ft. 6 in. draft. Speed from 16 to 18 miles. Powered with Seabury Triple Expansion engine; 2 Almy water tube boilers. Engine and boilers in elegant shape. Electric lights. Steam heat. Dining saloon and pantry in forward deckhouse. Social hall in after deck house. Two double and one single staterooms, bathroom and additional toilet room aft. Remarkable deck space. Deckhouses of mahogany throughout. Attractively finished and furnished. Yacht looks like new throughout. This yacht was not in war service and has had practically perfect upkeep. During 1922 hull was completely overhauled and many permanent improvements made at considerable cost. Owner has purchased larger steam yacht through us therefore desires to sell. Opportunity to secure thoroughly high class yacht in splendid condition at an attractive figure. Good, steady sea boat. Can at present be inspected out of the water. For plans, further particulars and inspection apply to

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No. 3455—EXCEPTIONAL BARGAIN—Twin-screw cruising motor yacht; 111 ft. overall, 12 ft. 6 in. beam, 4 ft. 6 in. draft. Built 1915. Speed 13 miles; two 75/85 H.P. 6 cyl. Twentieth Century Motors (new 1921). Independent electric lighting plant. Accommodations include dining saloon and galley forward; large double stateroom, two single staterooms, bathroom and saloon aft. Economical to operate. Construction substantial and of the best. Copper fastened hull. Large gasoline and water capacity. Low figure will be accepted for immediate disposal. For further particulars apply to

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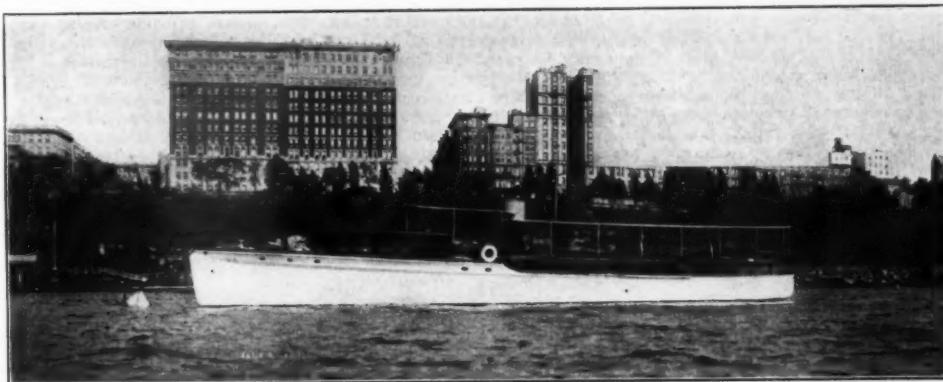


THE DINING SALOON AMIDSHIPS



INTERIOR OF FORWARD DECKHOUSE

FOR SALE
AT
ATTRACTIVE FIGURE



NO. 2335—HANDSOME, TWIN SCREW CRUISING MOTOR YACHT

Specially offered to those desiring exceptionally high-class craft
Also suitable for Florida cruising as embodies light draft and excellent ventilation

DIMENSIONS—83 ft. overall, 13 ft. 6 in. beam, 3 ft. 6 in. draft

SPEED—Up to 14 miles

POWER PLANT—Two 75 H. P. 6 cyl. 20th Century Motors

EXCEPTIONAL ACCOMMODATION

Large saloon in forward deckhouse; with pullman berth; dining room amidships with two extension berths; separate galley; aft are large owner's double stateroom, full width of boat, guest's stateroom and bathroom. Unusually large deck space. Interior handsomely finished in mahogany and white; attractively furnished. Electric lights (independent plant). For prompt sale owner will accept unusually low price.

*For plans,
further
particulars
apply to*



ENGINE ROOM



OWNER'S STATEROOM

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Telephone 2700 Whitehall

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No. 3533—FOR SALE AT BARGAIN FIGURE—Handsome, twin screw, cruising motor yacht; 72 ft. overall, 12 ft. beam, 3 ft. 6 in. draft. Speed 13 to 14 miles; powered with two 125 H.P. 6 cyl. Winton Motors. Constructed by Lawley in 1917, in highest class manner. Deckhouse, trunk, cabin and exterior trim of teakwood; interior finish mahogany and white. Dining saloon in deckhouse forward with galley directly aft of same. Engine room amidships enclosed with steel bulkheads. Aft are two double staterooms, bathroom and an additional toilet room. Ample locker space. Independent electric light plant; hot water heating plant. Yacht has had excellent upkeep, having been built for present owner, who desires to effect prompt disposal. Completely overhauled this year at considerable cost. An opportunity to secure exceptionally fine cruiser, at figure which makes her most attractive purchase available for her size and type. For plants, further particulars and inspection apply to

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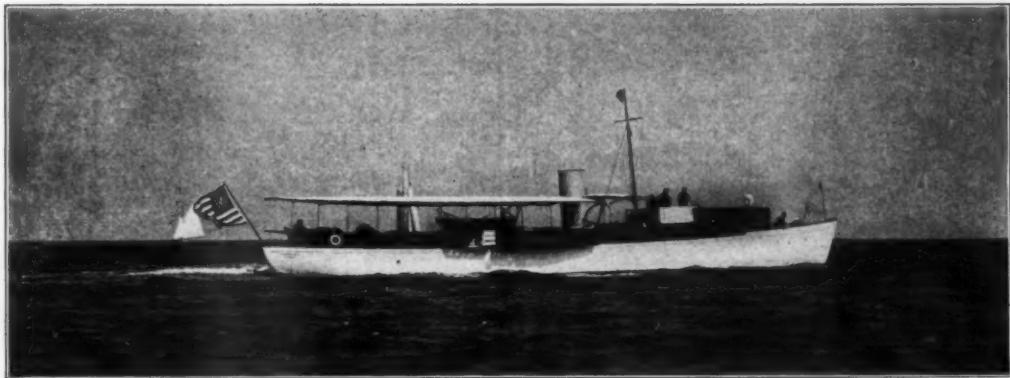
No. 3333—FOR SALE—Especially fine twin-screw express cruiser; 58 ft. long, 9 ft. beam, 2 ft. 10 in. draft. Speed up to 33 miles; cruising 20 to 25 miles per hour. Beautiful hull of mahogany, double planked—finest construction by Seabury. Powered with two 300 H.P. Sterling motors (only used two short seasons) with full one-man control at steering wheel; motors have bronze and aluminum base. Crew's quarters forward; next is bridge deck, just aft of which is forward cockpit of good size, followed by owner's cabin with two berths, toilet room and galley, then another cockpit. Electric lights. Interior and exterior joiner work of finest mahogany. Pressure of business prohibits use by owner next season, hence excellent opportunity to secure at attractive figure smart craft of finest quality, which has had thorough upkeep. Has proven remarkable seagoing. For further particulars and inspection apply to

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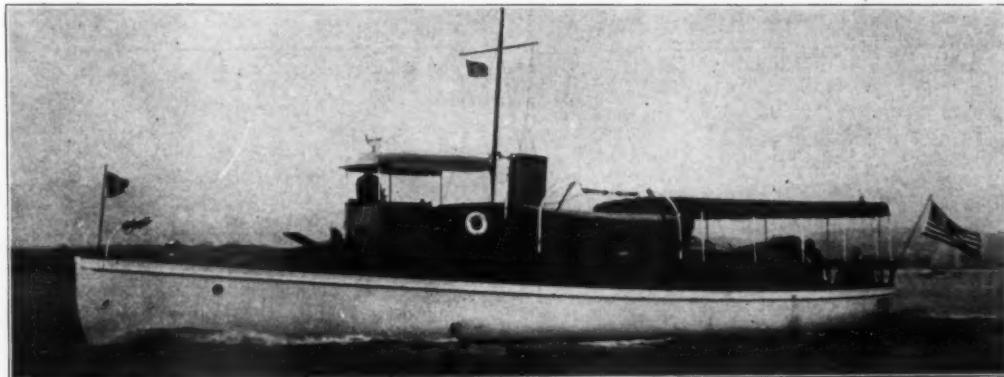
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No. 296—IMMEDIATE SALE DESIRED TO CLOSE ESTATE—Twin screw cruising motor yacht, 102 ft. overall, 14 ft. beam, 5 ft. draft. Speed 13 to 15 miles. A handsome, able craft of highest class construction by Lawley. Powered with two 125 H.P. 6 cylinder Winton Motors. Independent electric lighting plant. Dining Saloon in forward deckhouse, with galley directly aft of same; engine room amidships; next aft is owner's double stateroom and toilet room followed by main saloon; furthest aft is guest's double stateroom and toilet room. Interior handsomely finished in mahogany. Good deck space. Yacht has had excellent upkeep; was not in War service. Opportunity to secure remarkable bargain. For plan and further particulars apply to

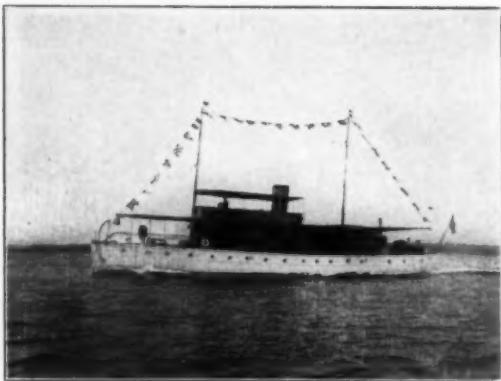
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No. 3268—FOR SALE AT LOW FIGURE—Bridge deck motor cruiser, 65 x 14 x 3.6 ft. draft. Speed up to 15 miles; 150 H.P. 8 cyl. Sterling motor (new 1920) controlled from bridge; electric self-starter and Independent Electric Generator. Exceptional accommodation for boat of type and size. Arrangement includes saloon sleeping four, two double staterooms, bath and two toilets. Very well equipped. Interior finished in mahogany and cream enamel. Fine sea boat and adapted for both Northern and Southern cruising. Can be inspected in New York by applying to

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NAVAL ARCHITECTS COX & STEVENS YACHT BROKERS



No. 2247—Unusual Bargain—Comfortable, able roomy twin screw motor yacht, 89' overall, 15' 3" beam, 5' 9" draft. Speed 12 to 13 miles. Powered with two 80 H.P. 6 cylinder Winton motors. Independent electric light plant. Main saloon in forward end of deckhouse with stairway leading to quarters below, consisting of owner's double stateroom with private bathroom, one guest's stateroom with bathroom adjoining and another guest's stateroom with toilet room. Engine room amidships. Aft is dining saloon below deck with two transoms and large separate galley. Interior mahogany and white. Large bridge deck. This cruiser was not in War Service; will be sold at virtually sacrifice figure for immediate disposal. For plan, inspection, etc., apply to

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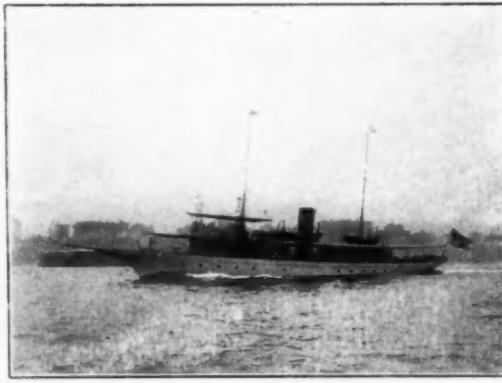
No. 3636—For Sale or Charter—Most desirable large steel auxiliary schooner yacht available, 171' 6" overall, 125' waterline, 28' beam, 16' draft. Deck saloon, main saloon, two double and two single staterooms, three bathrooms, etc.; excellent condition; recently completely reconditioned throughout; unusual bargain. Cox & Stevens, 25 Broadway, New York.

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No. 3957—For Sale or Charter—Up-to-date power houseboat, 61' x 16' x 3'. Speed 10-11 miles. 70-90 H.P., 6 cylinder Standard motor. Dining saloon, two double and one single staterooms, bathroom and two toilets below aft in addition to attractive deck saloon. Excellent boat for both Florida and Northern cruising. Handsomely furnished. Cox & Stevens, 25 Broadway, New York.

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No. 3168—For Sale—Desirable, steel, steam yacht, 127' overall, 101' waterline, 16.3' beam, 7.2' draft. Speed up to 15 knots; triple expansion engine. Two Almy water tube boilers. Electric lights; steam heat. Deck dining saloon forward; social hall in after deckhouse. Aft below are two double and three single staterooms, bathroom and two toilets. Large bridge and after deck. Has had careful upkeep. An excellent seaboat; remarkably economical to operate. Low price will be accepted for quick sale. Was not in War Service. For plans and further information apply to

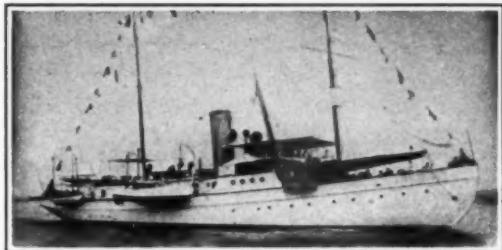
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TAMS & KING

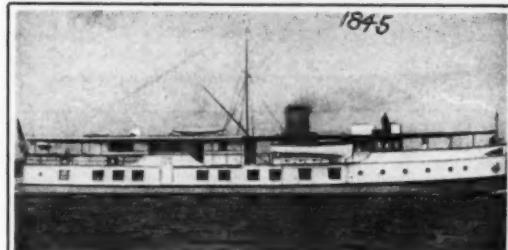
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OFFER ALL OF THE DESIRABLE YACHTS AVAILABLE FOR SALE AND CHARTER, SOME OF WHICH ARE ILLUSTRATED BELOW



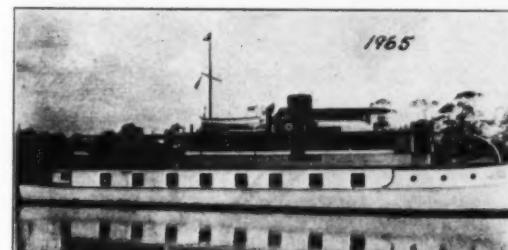
No. 2618—Sale—Ocean-going steam yacht—158' x 127' 7" x 24.8' x 12' 9" draft. Built 1913. Commodious owner's accommodations. Completely and thoroughly overhauled, refitted and refurnished under our supervision in Fall 1920.



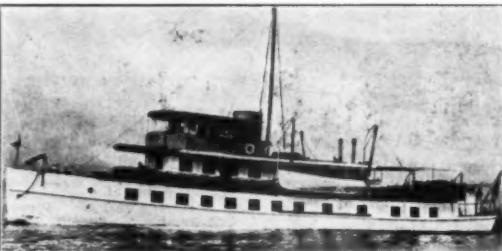
No. 1845—Sale—In commission in Florida waters. Modern triple screw houseboat. 120' 9" x 21' x 3' draft. Designed by Tams & King and built in 1920. Three Meitz & Weiss oil engines. Six staterooms, four bathrooms, dining saloon, deck sitting room, etc.



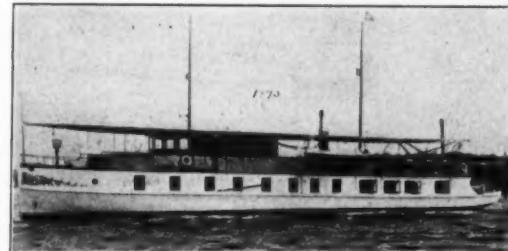
No. 1913—Sale—Charter—Attractive 77' houseboat—2-50 H.P. Standard Motors—Speed 11 miles—4 staterooms, dining saloon, deck saloon and 2 bathrooms.



No. 1965—For Sale or Charter—99' twin screw houseboat. 22' draft. Built 1922. Commodious accommodations. Standard motor. Located in Florida waters.



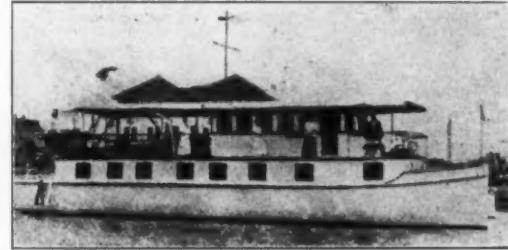
No. 1941—For Sale or Charter—Desirable 100' houseboat. Two 125 H.P. Winton motors. Six staterooms, three bathrooms, dining saloon, etc.



No. 1970—For Sale or Charter—Reasonable price. 95' houseboat. Four staterooms, two bathrooms, saloon, etc. Two 50 H.P. Standard motors.



No. 1888—For Charter—Very desirable 85' houseboat. Four staterooms, two bathrooms and large dining saloon. Completely refitted and refurnished recently.



No. 1902—For Sale or Charter—64' houseboat in Florida waters. Three staterooms, bathroom and dining saloon.

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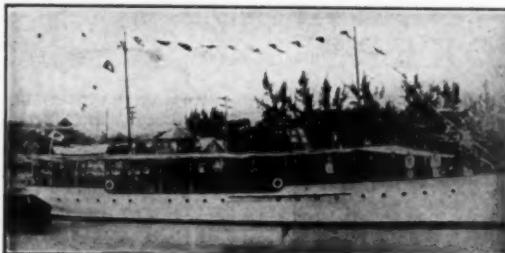
HENRY J. GIELOW, Inc.

25 West 43rd STREET, NEW YORK

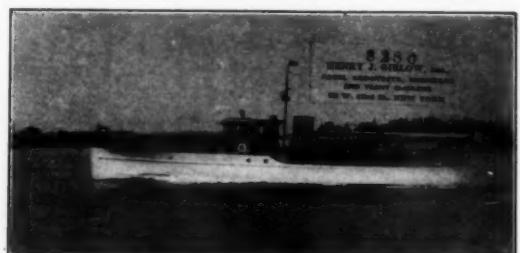
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Cable Address:
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A.B.C. Code

Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

We have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats, on file in our office, kept constantly up-to-date by a thorough and comprehensive coverage of the entire yachting field from time to time. We are in a position to submit full information on any type of boat, upon request.



No. 7806—For sale—Best purchase for quality at reasonable price. 93' x 18' x 3' 10". Desirable for Florida and Cuba. Twin screw, handsome, able cruiser in commission. Owner abroad. Built 1918 by prominent firm. Speedway motors. Speed 12-14 miles. Teak deck trim, three double, one single staterooms, bath, deck saloon. Large crew quarters. Condition 100 per cent. Complete. Henry J. Gielow, Inc., 25 West 43d St., New York City.



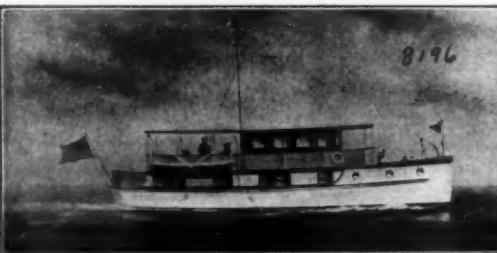
No. 8280—For Sale—Modern 73' twin screw power yacht. Built 1923. Two 150 H.P. Sterling motors. Speed 16-18 miles. Two double staterooms, bathroom, etc. Completely found. Inspectable New York City. Henry J. Gielow, Inc., 25 West 43d St., New York City.



No. 8310—For Sale—Most desirable cruising houseboat, giving exceptional accommodations. 45' x 13' x 3'. Built best manner in 1921. Actual speed 9 miles. Double and single staterooms, saloon and deck saloon. Sleeps six. Crew stateroom forward. Delco plant, completely equipped. Near New York. Henry J. Gielow, Inc., 25 West 43d St., New York City.



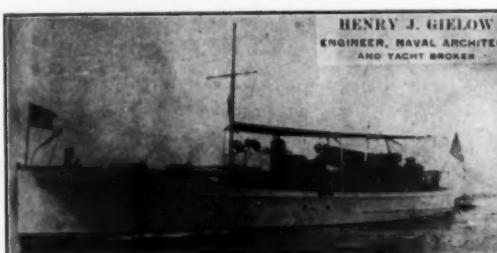
No. 8014—For Sale—Located Florida. Night charter season. 52' x 14' x 3'. Built 1919 of best materials and finish. 50 H.P. Standard motor. Speed 9-10 miles. Double and single staterooms, deck saloon and lower saloon. Sleeps 5-6. Completely found, all fine condition. Anxious to sell. Price reasonable. Hot water heated. Henry J. Gielow, Inc., 25 West 43d St., New York City.



No. 8196—For Sale—Attractive 1922 built cruising houseboat. Just the type for Florida and Northern cruising. 49' 11" x 13' 7" x 3'. Electric starting. Standard motor new 1923. 50 H.P. Speed 10 miles. One double, one single staterooms and saloon. Sleep six, besides crew of two men. Delco electric plant, fully equipped, all best quality. Economical. Deckhouse 12' x 8'. Also lower saloon. Roomiest boat of size available. Price reasonable. Henry J. Gielow, Inc., 25 West 43d St., New York City.



No. 7056—For Sale—Charter—Attractive cruiser with houseboat accommodations, having three double staterooms, large deck house and lower saloon. Accommodates 6-9. Two 30th Century motors. Speed 10-11 miles. Bath, two toilets in owner's quarters. Dimensions are 88' x 16' 6" x 3' 6". Hot water heat, electric plant. Completely equipped for cruising. Economical to run with crew of five men. Reasonable price. Henry J. Gielow, Inc., 25 West 43d St., New York City.



No. 7261—For Sale—Nice, 50' cruiser. Finest condition. Just put in commission. Complete, able seafarer. 150 H.P. Sterling. Speed 11-12 miles. Had but one owner and used four seasons as day cruiser. Condition like new. Handsome model. Electric plant. Sleeps four to six. Henry J. Gielow, Inc., 25 West 43d St., New York City.



No. 8086—Available for Southern charter, modern twin screw cruising houseboat. Built 1920. Speed 11-12 miles. Four double staterooms, two bathrooms. Large deck house. Hot water heated. All conveniences. Henry J. Gielow, Inc., 25 West 43d St., New York City.

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Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

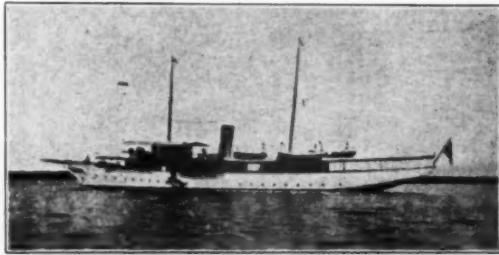
We have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats, on file in our office, kept constantly up-to-date by a thorough and comprehensive canvas of the entire yachting field from time to time. We are in a position to submit full information on any type of boat, upon request.



No. 9565—For Sale—Bargain in 131' steam yacht in splendid shape. Three double, three single staterooms, two baths, dining saloon and social hall. Interior finish mahogany and bird's eye maple. Henry J. Gielow, Inc., 25 West 43d Street, New York City.



No. 9551—For Sale or Charter—Fine Lawley built steel steam yacht, good speed, six staterooms, two bathrooms, dining saloon, social hall. Handsomely finished in old English oak. Price attractive. Henry J. Gielow, Inc., 25 West 43d Street, New York City.



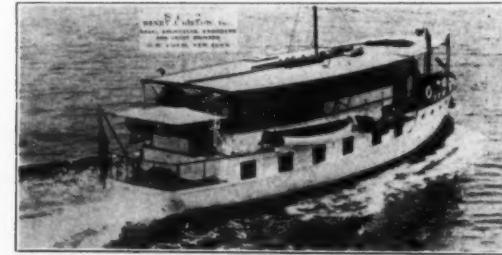
No. 9536—For Sale or Charter—Oil burning steam yacht, seven staterooms, three baths, large social hall and dining saloon. In splendid shape; can be ready for sea on short notice. Henry J. Gielow, Inc., 25 West 43d Street, New York City.



No. 8289—For Sale—One of the popular 40' Consolidated twin screw Florida fishing boats built 1922. Speedway engines. Located in Florida. Henry J. Gielow, Inc., 25 West 43d Street, New York City.



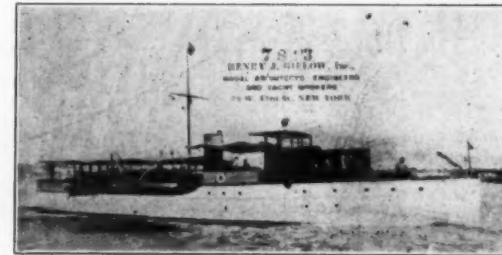
No. 7435—For Sale—Attractive 40' raised deck cruiser. Private stateroom and main saloon. Twentieth Century motor. Owner has bought larger boat. Bargain. Henry J. Gielow, Inc., 25 West 43d Street, New York City.



No. 8172—For Sale to Close Estate—One of the popular Mathis 61' houseboats. Three staterooms, bathroom, dining saloon, large deck house. Florida delivery. Henry J. Gielow, Inc., 25 West 43d Street, New York City.



No. 8294—For Sale—65' twin screw power yacht. New 1923. Two staterooms, bath, large deck house. Mahogany and white enamel interior. Great Lakes location. Henry J. Gielow, Inc., 25 West 43d Street, New York City.



No. 7843—For Sale—63' twin screw offshore cruiser. Built 1921. Winton motors. Three staterooms, bathrooms, saloon and deck house. Wonderful seagoat. Good seagoat. Henry J. Gielow, Inc., 25 West 43d Street, New York City.

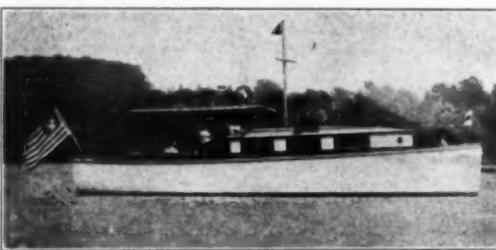
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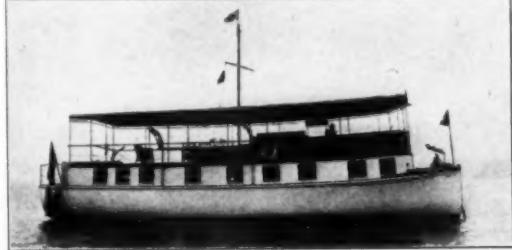
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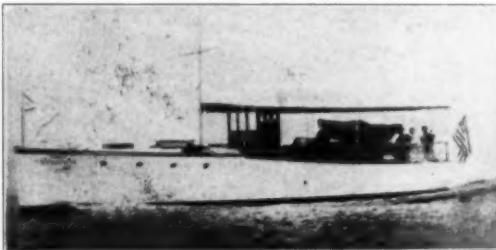
No. 426—For Sale—Exceptionally fine Luders power cruiser. motors. Speed 20 M.P.H. Accommodations include two double staterooms and large saloon; two toilets. Bridge control. An exceptionally high grade yacht in every respect. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



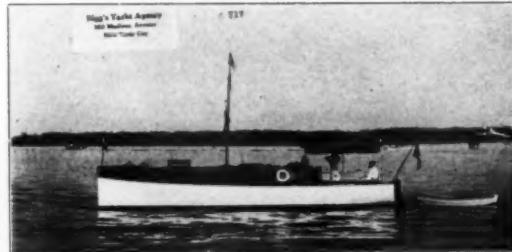
No. 954—For Sale—We have for sale three Elco cruisettes at prices ranging from \$3000 to \$4000. The best of the lot is the boat shown above, price \$3750. Has J. V. B. motor and is most completely found and in the finest possible condition. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



No. 78—For Sale—Power houseboat, 51' x 15' x 3' draft. Standard engine. Two double and one single staterooms. Speed 9 M.P.H. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



No. 622—For Sale—Elco 45 footer. Standard motor. Enclosed bridge, and all engine controls at the helm. Perfect shape. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



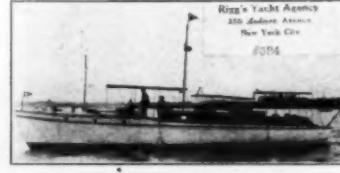
No. 717—For Sale—Raised deck power cruiser. One of the best ever built. Dimensions, 36' x 9' x 3' 10" draft. Designed and built by Luders. Scripps engine. Accommodations for five. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



No. 450—For Sale—Cruising power yacht. Very complete. Dimensions, 62' x 12' 2" x 4' Murray & Tregurtha engine. Two double staterooms. Two toilets. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



No. 1030—For Sale—International 32 footer. New 1920. Kermath engine. Fully found. Excellent condition. Price \$2500. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.

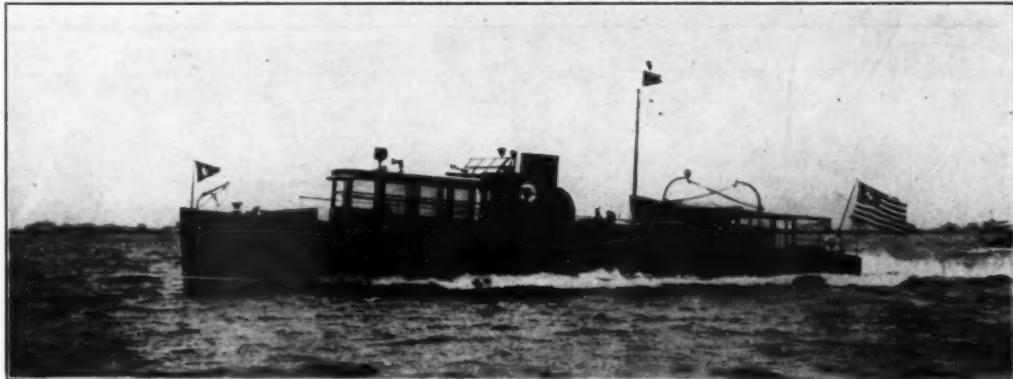


No. 384—For Sale—Fast bridge deck power boat. Lawley design and build. Was exhibited at the Motor Boat Show. Dimensions, 52' x 9' x 3' 6". Has brand new Speedway motor. Speed 15 M.P.H. Perfect shape and will stand most critical inspection. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.

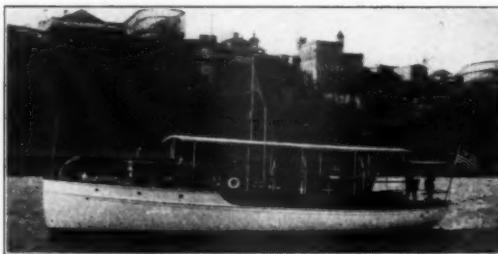
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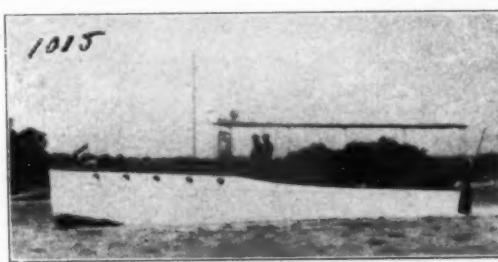
No. 841—For Sale—The finest express cruiser afloat. Dimensions, 67' x 13' 6" x 3' 4" draft. Murray & Tregurtha engines. Speed 30 M.P.H. Mahogany construction throughout. Exceptional accommodations, including two double staterooms, two toilet rooms, bathroom with shower, etc. Dining saloon in deckhouse. Now in commission in Florida. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



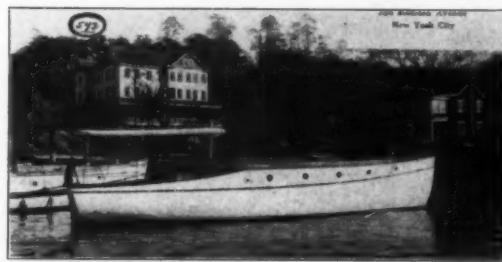
No. 944—For Sale—Owner unable to use and is very anxious to dispose of boat quickly. Her dimensions are 60' x 12' 6" x 3' 6". Twentieth Century motor, two double staterooms, separate wash basin in each stateroom; crew's quarters and engine room aft, hot water heating throughout, independent lighting system. All in perfect condition. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



No. 1005—For Sale—Consolidated 52 footer. Good as new. Speedway motor. Speed 14 M.P.H. Accommodations for six. Very fine owner's quarters. Best boat of her size available. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



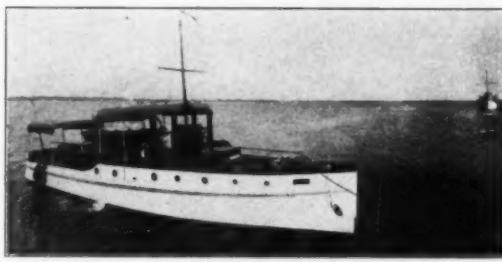
No. 1015—For Sale—Express cruiser built by Albany Boat Corporation 1917. Sterling motor, 85 to 125 H.P. Speed 16 miles an hour. Location near New York. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



No. 543—For Sale—Raised deck power cruiser, 40' x 10' 6" x 3' 6". Palmer engine, 30 H.P. Very well built. Perfect shape. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



No. 939—For Sale—Ideal combination power and sailing yacht. Dimensions, 39' x 12' x 4' draft. Designed by Mower and built last winter. Has new Stearns motor with self starter. Speed under power alone over 8 knots. Very roomy and comfortably accommodates six. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.



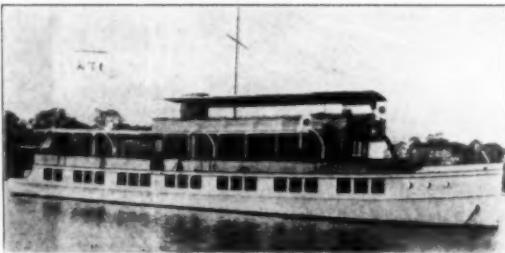
No. 718—For Sale—Bridge deck power cruiser, 42' x 9' x 3' 8". Two staterooms. Accommodations for six. Lamb motor. Very cheap for quick sale. Apply RIGG'S YACHT AGENCY, 350 Madison Ave., New York City, N. Y.

R. M. HADDOCK

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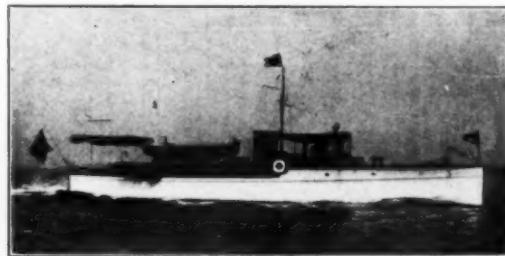
No. 271—For Sale or Charter—Twin screw motor houseboat, 96' x 21' x 3' 6" draft. Built 1920. Standard motors. Can accommodate ten very comfortable. Located in Florida waters. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



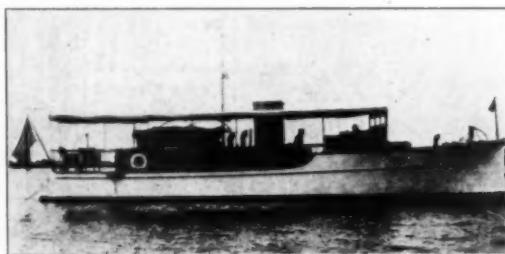
No. 238—For Sale or Charter—52' Mathis houseboat in excellent condition. Located in Florida. Accommodations for six. Very desirable boat. A number of these boats are now available. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 4194—For Sale—Elco 50' cruiser powered with a 6 cylinder Sterling motor. Good accommodations and in excellent condition. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



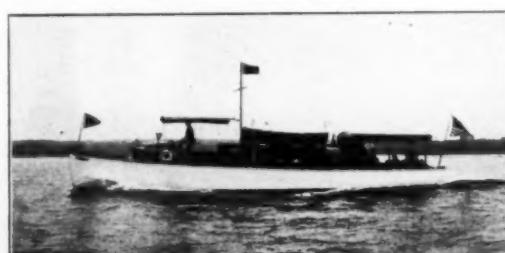
No. 3139—For Sale—Enclosed 60' bridge deck cruiser. Large cockpit aft. Speed up to 15 M.P.H. Standard motor. Very attractive and seaworthy. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 353—For Sale—One of the Consolidated Stock 52' cruisers. Six cylinder Speedway motor. In A1 condition. Rigid inspection invited. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 4161—For Sale or Charter—Now in Florida waters. A 1923 Elco 45' cruiser. Speed up to 12 M.P.H. Will accommodate six or eight very nicely. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 4180—For Sale—Very desirable bridge deck cruiser. 53' x 13' x 3' draft. Will accommodate eight persons. Speed up to 12 M.P.H. Price reasonable. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 4172—For Sale—In Florida water. 32' raised deck cruiser designed and built by the Consolidated Ship Yard. Scripps motor new 1922. Sleeps four. Price attractive. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.

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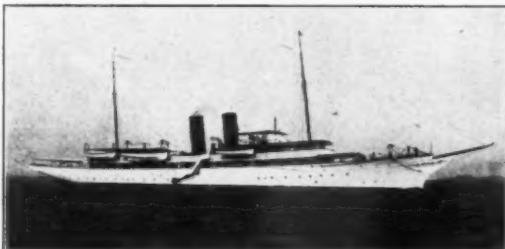
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50 EAST 42nd STREET, NEW YORK CITY

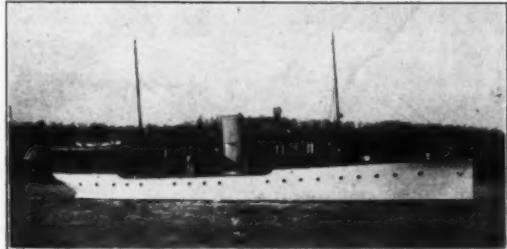
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YACHT BROKER

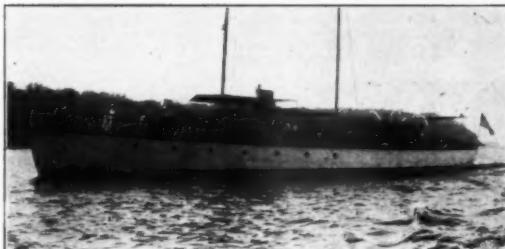
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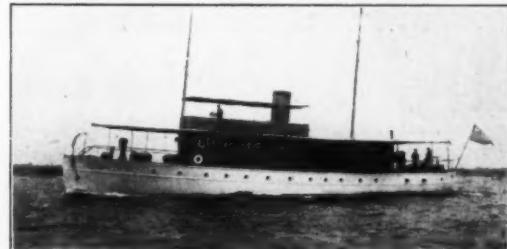
No. 130—For Sale—May Charter—Seagoing twin screw steam yacht, 202' x 29' x 10' draft. In excellent condition. Wonderful accommodations. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



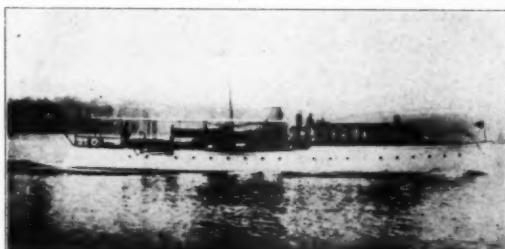
No. 3126—For Sale—93' twin screw power yacht. Three double and one single staterooms. Can accommodate eight persons in owner's party. Speedway motors. Speed 12 M.P.H. A very desirable yacht. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



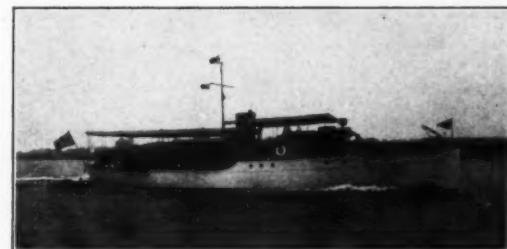
No. 3170—For Sale at a Bargain Figure—Twin screw cruising power yacht, 95' x 14' x 4' draft. Powered with Standard motors. Can accommodate seven to eight persons. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 309—For Sale at a Bargain Figure—Twin screw power yacht, 89' x 16' x 6' draft. Two 80 H.P. Winton motors. Excellent accommodations. Located in New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



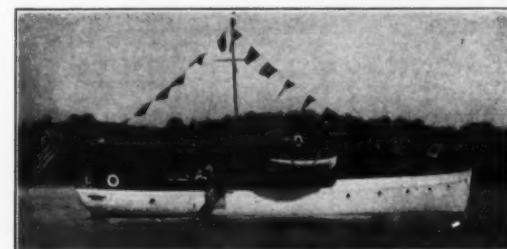
No. 358—For Sale at a Bargain Figure—Twin screw motor yacht, 98' x 15' x 4' 6" draft. Two 125 H.P. Standard motors. Excellent accommodations. Can be seen near Providence. Owner anxious to sell. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 311—For Sale—Bargain—Modern twin screw motor yacht, 72' x 12' x 3' 6" draft. Built 1917. Speed 13-14 miles. Two 125 H.P. 6 cylinder Winton motors. Deck dining saloon forward, two double staterooms, bath, two toilets, aft. All conveniences. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 3017—For Sale—77' Diesel motor yacht. Two double staterooms and saloon; berth in deck house forward. Cruising radius 1800 miles at 10 knots. Cheaper to operate than gasoline driven vessel. Excellent offshore cruising yacht. Price reasonable. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.



No. 315—For Sale—90' deckhouse cruiser. 125 H.P. reversible Standard. Speed 14 M.P.H. Two double staterooms and two saloons. Designed and built by Lawley. Price very attractive. Located near New York City. For further particulars apply R. M. HADDOCK, Naval Architect and Yacht Broker, 50 East 42d St., New York City.

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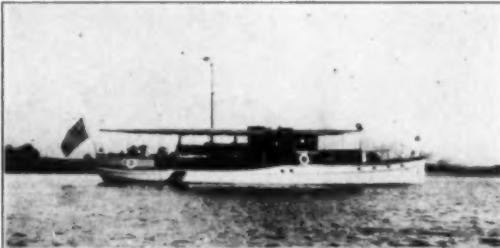
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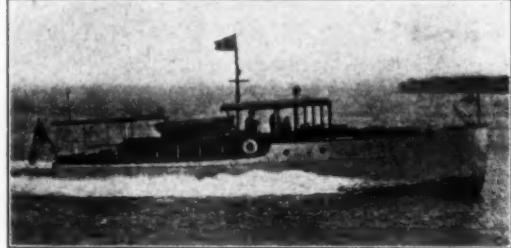
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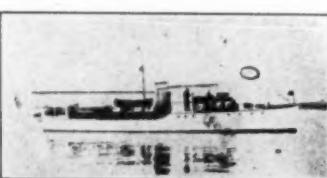
We have a complete list of all steam and power yachts, auxiliaries, and houseboats, which are for SALE and CHARTER. Plans, photographs and full particulars furnished on request.



No. 751—For Sale—Modern twin screw cruising yacht, 75' x 16' x 3' 6". Two 6 cylinder heavy duty motors. Speed up to 14 miles per hour. Unusually well laid out. Two single and one double stateroom, large dining saloon, enclosed bridge deck. Beautifully finished and furnished. Very complete inventory. Well adapted for Northern or Southern waters. Particulars from Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



No. 1018—For Sale—Here is your opportunity to purchase one of the Great Lakes 54' twin screw express cruisers for about half the original cost. Boat in excellent condition. Speed up to 22 miles. Sleeps eight in owner's quarters, and two in crew's. Very complete and in excellent condition. Further particulars from Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



No. 981—For Sale—72' twin screw cruiser. 12' 3" beam, 3' 6" draft. Built by Lawley in 1917. Two Winton motors. Accommodate six, besides crew. Well built, and in good condition. The boat is fully equipped with every modern convenience. Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



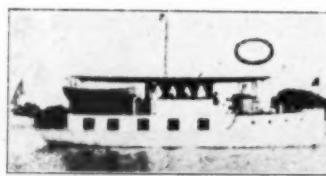
No. 1073—For Sale—38' x 9' double cabin bridge deck cruiser, powered with 60 H.P. motor with electric starter. Speed up to 15 miles per hour. An ideal family boat. Very complete inventory. Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



No. 413—For Sale—85' twin screw steel gasoline yacht. Two double, one single staterooms, also a bathroom. Speed was 18 miles. An excellent seagoing and comfortable cruiser. Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



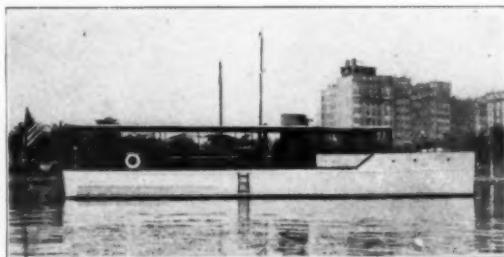
No. 1100—For Sale—Very comfortable 60' x 15' x 4' bridge deck cruiser. Exceptionally heavily constructed. Powered with a 6 cylinder heavy duty Standard motor, one-man control. Will sleep eight comfortably, besides crew of two. Price and full particulars from Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



No. 945—For Sale or Charter—Modern 52' houseboat. Recent build. One single, one double stateroom and bath. Attractively furnished. Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



No. 986—For Sale or Charter—Twin screw power cruiser, 62' x 15' x 3'. Sterling motors. Speed 12 miles. Attractively arranged and furnished. Constructed for use in Northern and Southern waters. Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



No. 904—For Sale at a most attractive price—62' x 11' twin screw express cruiser. Double planked hull. Powered with two 8 cylinder Sterling motors used only four months. Cruising speed of 20 miles per hour. Deico lighting plant. Sleeping accommodations for six in owner's quarters. Estate very anxious to sell. Complete particulars from Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.



No. 1101—For Sale—Twin screw, 92' x 14'. Lawley built Winton powered cruiser. Speed up to 18 miles per hour. Three staterooms and two bathrooms in owner's quarters, large dining saloon and spacious deck. Ideal for cruising in any waters. Attractive price. Complete information from Henry C. Grebe & Co., Inc., 6 North Michigan Ave., Chicago, Ill.

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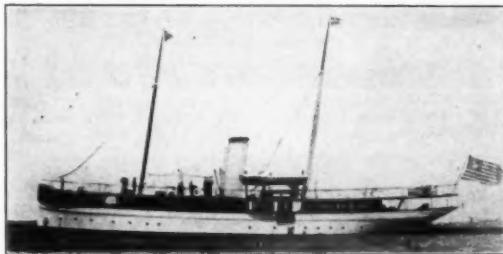
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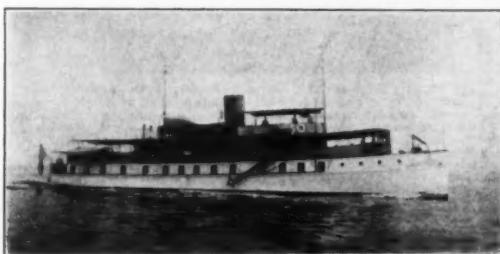
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"Windward", N. Y.

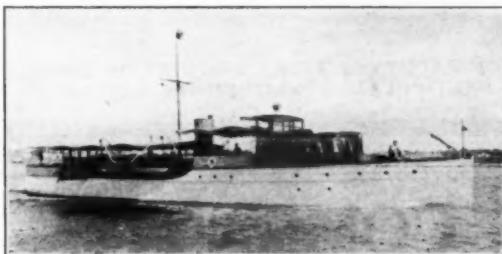
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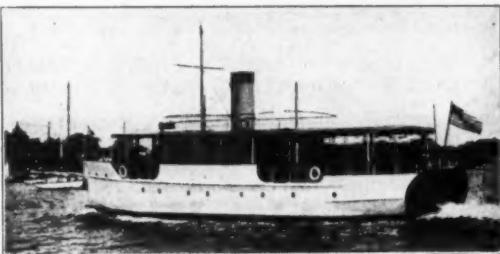
No. 2003—For Sale—Seagoing steam yacht. British built. American owned. 125 ft. 233 tons. Twin screw. Classed at Lloyds. Attractive price. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 2277—For Sale or Charter—Power house yacht. Length 115 ft. Recent build. Probably the best yacht of this size and type. Commodious accommodations. Handsomely fitted. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 4009—For Sale—93 ft. Twin Screw Power Yacht. Recent build. Very high class. Excellent accommodations. Winton motors. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 3631—For Sale—71 ft. modern Power Yacht, having features of Power House Yacht. Deck saloon, 3 double staterooms, Dining saloon, bathroom, etc. Standard motor. Fully equipped. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 2306—For Sale—Power house yacht. Mathis built. Length 61'. The only yacht of this size and build available for purchase. Standard motor. Florida delivery. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 3538—For Sale—65' express cruiser. Recent build. Best design and construction. Twin screw. Speed up to 10 miles. Excellent cabin arrangement. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 7220—For Sale—45' express motor boat. Lawley build. Two Sterling engines. Speed 30 miles. Mahogany planking and trim. A marine Rolls Royce. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 2253—For Sale or Charter—70 ft. Twin Screw Power Yacht now in Florida waters—Saloon, 2 double staterooms, bathroom, etc. Sterling motors. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 1244—For Sale—51 ft. Elco Bridge deck cruiser—2 cabins. Condition good as new. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 6040—For Sale—40 ft. Albany Express cruiser. Speed 20-23 miles. Sterling motor. Two separate cabins. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.

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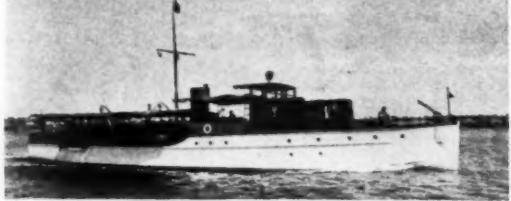
No. 1802—For Sale and Charter—Steel, twin screw power yacht, 110' x 16'; two 6-cylinder Standard motors. Very large deck house and exceptional owner's accommodations. Plan and full details gladly submitted.



No. 103—For Sale and Charter—Mathis built houseboats, 61', 73' and 80'; available for Florida use. Will be pleased to furnish full information.



No. 2452—For Sale—Twin screw power yacht, 72' x 15' x 4'. Two new 6 cylinder Sterling motors installed 1923. Speed 15 miles. Sleeping accommodations for six or eight in owner's party.



No. 2651—For Sale—Modern power yacht, 93' x 15'. Two six cylinder Winton motors. Best construction: double planked hull; attractive accommodations.

WILLIAM GARDNER & CO. HAVE A COMPLETE LIST OF YACHTS OF EVERY DESCRIPTION FOR SALE AND CHARTER. PLANS, PHOTOS, AND FULL PARTICULARS FURNISHED ON REQUEST

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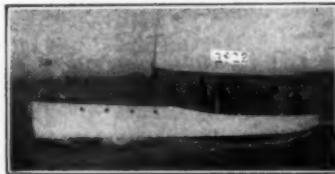
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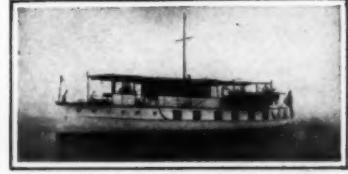
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No. 1831—For Sale—45' Elco cruiser. Double stateroom, main cabin with two upper and two lower berths, two toilets, etc. Electric lights, etc. 32-37 H.P. Standard motor. Speed 11 miles. Has mahogany windshield.



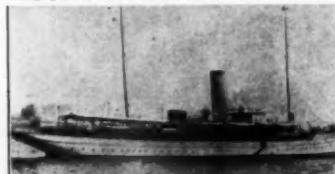
No. 2384—Canadian power yacht, twin screw, 65 ft. long, 12 ft. beam, 4 ft. 2 in. draft. Built in 1919. Heavily constructed and exceptionally roomy. Four staterooms and large saloon about 12 ft. long, with four berths. Sleeping accommodations for ten people. Two toilets. Large galley. Mahogany deckwork. Two Sterling motors. Speed 12-16 miles. Electric lights, separate lighting plant, etc. Price attractive.



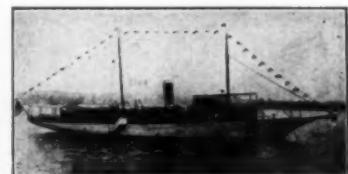
No. 4383—For Sale—60' Mathis houseboat. Four staterooms, dining saloon, social hall, etc. 70-90 H.P. Standard motor. Hot water heat, etc. Speed 11-12 miles. Located in Florida.



No. 4363—For Sale—52' Mathis houseboat. Two staterooms, saloon and deck saloon, toilets and shower bath. Standard motor. Speed 9-10 miles. Electric lights and hot water heat. Splendid proposition. Also have 43' Mathis houseboat with deckhouse. Available for charter. Both located in Florida.



No. 3639—For Sale—At a very attractive price. Large ocean-going steam yacht, 300 ft. long. Classed 100' A1. Commodious accommodations. For full particulars, photo and plan, inquire H. H. Jennings Co., 154 Nassau St., New York City.



No. 1664—For Sale—Twin screw steel power yacht, 110' long, 21' beam. Five double staterooms. Large saloon, two bathrooms, etc. Two 125-150 H.P. Standard motors. Speed 12-14 miles. Electric light, ice machine, etc. Splendid proposition. Located in Florida.

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JOLLY BEGGAR—A WINNER

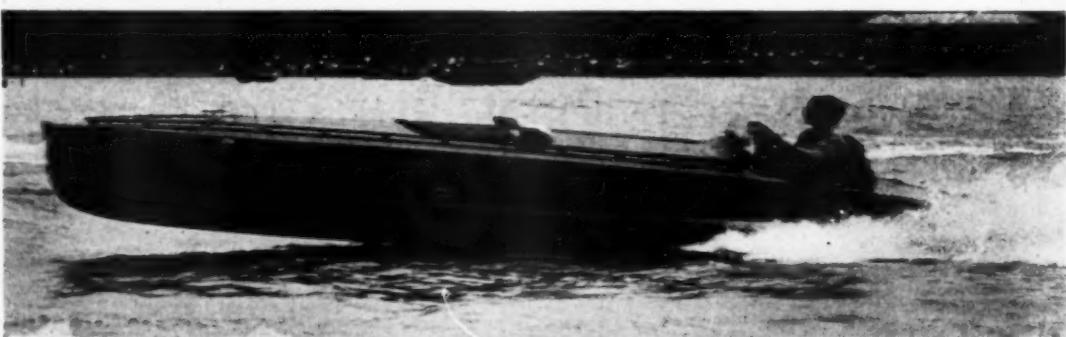
Jolly Beggar is a boat for the man who wants all the thrills of a speed cruiser, and the satisfaction of owning a boat that will start from scratch and come in first on any handicap race of its class. A big comfortable cruiser with real cruising accommodations, not built especially for racing but fast enough to take the monotony out and put some excitement in, whether it's a short ride or a long cruise.

Jolly Beggar won the Express Cruiser Championship of the Connecticut River, also the Express Cruiser Championship of Long Island Sound, and is the 1923 Champion Single Engined Express Cruiser of the World.

Speed 30 miles. 300 H.P. Fiat marine engine with electric starter and electric lights. Powerful electric searchlight, Strombos horn, 9 ft. cedar dinghy and all usual equipment. The hull is mahogany, 39 ft. x 9 ft. x 2 ft. 6 in., designed by Wm. H. Hand, Jr. Bridge amidships with cabins fore and aft, sleeping six. Two toilets. Complete galley.

Price \$14,000. Owner is buying a larger boat.

Address inquiries to Box 78 MOTOR BOATING



RAINBOW III—FOR SALE

Established World's 24-Hour Record at Muskoka Lakes, Canada, Sept. 18-19, 1923

Rainbow III is the most consistent and successful speed runabout ever built. Tied for first place on points in 90-mile Gold Cup Trophy Race at Detroit, Sept., 1923, winning the first two heats by a comfortable margin. Finished fourth in 150-mile International Sweepstakes with less than half the piston displacement of most of the other contestants. And then, a few weeks later, she established the world's marine record of 1064 miles in 24 hours.

Powered with a Packard Gold Cup Model Marine Engine, six cylinders, 150-200 H. P. Average speed for 24 hours, 45.3 miles per hour. Maximum speed, 53 miles per hour. Length 25' 6", beam 5' 3". Designed by Hacker, built by Ditchburn during 1923.

Rainbow III is for sale at about half the cost to build. An excellent buy to win the championships this winter at Miami, March 7 and 8, and Havana, Cuba, March 15 and 16. The man who knows all the experimental work, expense and delays in building a successful speed boat will recognize the opportunity now offered. Ready for immediate delivery or shipment. Write or wire

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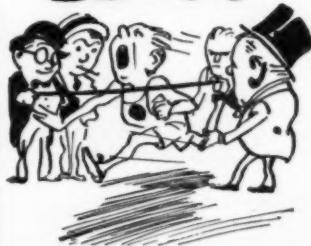
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No. 133—For Sale—Bridge deck cruiser. Dimensions, L. O. A., 38'; beam, 9' 6"; draught, 3'. Accommodates four people comfortably. Apply to Paul M. Runyon, Yacht Broker, 410 Olympia Building, New Bedford, Mass.

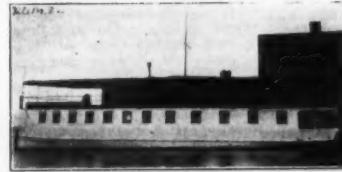
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Free Illustrated Literature, New Rebuilt Engines, Outboards, Clutches, Gears, Joints, Pumps, Hyde Propellers, Stoves, Cruisers, Runabouts, Canoes, Camping Outfits, Canadian Boat & Engine Exchange, Toronto.



No. 67—For Sale—Power cruiser. Dimensions, L. O. A., 30'; L. W. L., 28'; beam, 8'; draught, 2' 6". Excellent condition. A real bargain. Apply to Paul M. Runyon, Yacht Broker, Room 510 Olympia Building, New Bedford, Mass.

WANTED: Cruising 40 ft. motor seagoing heavy construction launch, cabin for six, 45 h.p. heavy duty engine. Give complete specifications. Steel hull preferred. Box 81, MoToR BoatinG.



No. 82—For Sale—Twin screw houseboat. Dimensions, L. O. A., 84' 6"; L. W. L., 76'; beam, 23' 6"; draught, 4' 6". Three single and two double staterooms. Boat in excellent condition. An excellent bargain. Apply to Paul M. Runyon, Yacht Broker, Room 510 Olympia Building, New Bedford, Mass.

Motor boat wanted, about 30', cabin or half cabin. Must be in good condition. Box 791, 206 Fitzgerald Building, New York.

FOR SALE:—Van Blerck Motor—New Model M8, Eight Cylinder, 200 H. P., High Speed. H. F. Gurney, 269 W. 25th Street.

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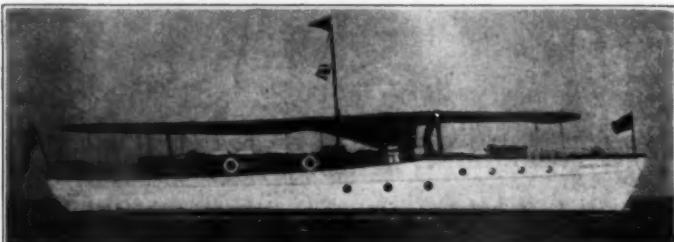
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Length 67 feet, beam 12 feet, draft 4 feet, 8 inches, speed over 10 miles, five double berths, three single berths, owner's stateroom, lavatory, Buffalo heavy duty six-cylinder engine completely overhauled last spring; Bosch electric starter, Delco electric plant, electric lights, electric fans, Shipmate range, large galley, large icebox, complete ground tackle, cushions, covers, deck chairs, linen, blankets, mosquito bars, tableware, skiff; all openings screened; deck awning entire length of boat.

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1 1/2 H.P. Detroit	\$23
3 H.P. Fox	30
4 H.P. Gray	40
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10 H.P. Vim	75
16 H.P. Northwestern	105
20 H.P. Gray	125
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20 H.P. 4 cylinder Relaco, \$350.
32 H.P. 4 cylinder, 4 cycle, heavy duty Lathrop, \$700.
65-75 H.P. 6 cylinder, medium duty Van Bierck, with starter and generator, \$550.
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ADIEU—Hacker built and designed runabout. 32 foot x 6 ft. 6 in. Powered with a 400 h. p. Packard Liberty Motor. Delco starter. 12 Volt system. Motor installed by Hacker. Speed 45 miles per hour—will do better. Forward and rear cockpits, seating eight people. A wonderful job for the races at Miami in March. Guaranteed in perfect condition in every respect. Very anxious to sell. Pictures and further particulars upon request. Address owner Jay A. Mellish, 312 Riverside Drive, New York City.

A first class and unusually complete bridge deck cruiser, 46' x 11 1/4' x 3 1/4", with six Sterling motor, electric starter, for sale in Florida. Would take an Elico cruise at reasonable price in part payment if in first class shape. Address "Cruisette," care Motor Boating.

FOR SALE—32' John Hacker V. type mahogany speed boat. Sterling Sea Gull 150 H.P. engine, built and delivered June this year. Run less than 50 hours. Maximum speed 34 miles an hour. Perfect condition. Can be seen, inspected and delivered immediately. Fully equipped, thoroughly seaworthy. Price \$5,000.00. Cost \$7,100.00. Owner buying larger boat. Address J. Gibian, 91 North Third St., Brooklyn, N. Y.

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*8-cyl., model F, 200 h.p.	1300
*6-cyl., model F, 145 h.p.	1500
6-cyl., model R-1, 135 h.p.	900
6-cyl. Dixie Jr., 75 h.p.	800
4-cyl., model B-20, 35 h.p., alum. base	650
4-cyl., model B-20, 35 h.p., iron base	600
*4-cyl., model E-2, 17-25 h.p.	700
Doman, 2-cyl., 12-15 h.p., new display motor	450

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*Murray & Tregurtha 4-cyl. 40-50 h.p.	1000
*Speedway 4-cyl., model Z, 35-44 h.p.	850
*Red Wing 4-cyl., 28-36 h.p., used as demonstrator	700
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80' x 14' x 3' 6" Bridge Deck, (2) 75 H.P. Standards. Four staterooms, large deck saloon. Very adaptable for Florida cruising.
 67' x 11' 10" x 4' 6" Bridge Deck, 85 H.P. Heavy Duty Sterling.
 65' x 14' 4" Cruiser, houseboat accommodations, (2) 60 H.P. Standard engines. Two double staterooms and deck saloon. Built 1923.
 62' x 12' x 3' 9" Bridge Deck, 70 H.P. Murray & Tregurtha. Two large staterooms aft, galley and dining saloon forward. Crew's peak, engine room amidships.
 60' x 12' x 3' 7" Bridge Deck, (2) 50 H.P. Sterlings.
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 49' 10" x 10' 4" x 3' 6" Bridge Deck, 36 H.P. Standard. Semi-inclosed bridge, plenty of deck space, a very heavily constructed and able boat.
 45' x 11' x 3' 6" Bridge Deck, 37 H.P. Standard, 32 volt Mathews electric plant, stateroom, two toilets, large saloon, galley, plenty of gas, water and ice capacity.
 40' x 10' x 3' 6" Bridge Deck, 40 H.P. J. V. B. Full headroom in cabin, large cockpit.
 40' x 10' x 3' Raised Deck, 60 H.P. Buffalo. Self-starter and generator, plenty of cabin and deck space.
 40' x 9' x 3' 6" Raised Deck, (2) 20 H.P. Kermaths. Self-starter and generator. Full headroom in cabin, boat in first-class condition.
 40' x 12' x 3' Raised Deck, 30 H.P. Vulcan. Large cockpit, standing top and side curtains. Built in 1918.
 38' x 9' 8" x 3' 6" Bridge Deck, 24 H.P. Automatic. Inclosed bridge.
 38' x 10' 6" x 3' 4" new Bridge Deck, 50 H.P. Van Blerck. Semi-inclosed bridge, large double stateroom and saloon.
 36' 7" x 10' x 3' Raised Deck, 24 H.P. Relaco. Large cockpit. Interior solid mahogany.
 32' Elco Cruisette. J. V. B. Engine. Boat in first-class condition. Fully equipped.

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50' x 10' 9" x 3' 3" Express Cruiser, 160 H.P., 8 cylinder Van Blerck. Built by Great Lakes Boat Building Co.
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 62' x 11' x 3' Express Cruiser (2), 225 H.P. Sterlings.

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37' x 12' x 3' Houseboat, 18 H.P., 4 cylinder engine.
 38' x 11' x 3' Houseboat, 30 H.P. Speedway.
 43' x 13' x 2' 6" Mathis Houseboat, 24 H.P. Standard.
 45' x 14' 6" x 3' Houseboat, 60 H.P. Buffalo.
 52' Mathis Houseboat, Standard engine.
 60' x 14' x 2' 6" Houseboat, 1922 (2), Standard engines, 3 staterooms and deck saloon.
 65' x 13' x 3' 6" Houseboat, 70 H.P. H.D. Standard, 2 double and 1 single staterooms.
 74' x 19' x 3' Houseboat, (2) 50 H.P. 20th Century engines, 2 double and 2 single staterooms, large deck saloon, handsomely furnished.

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 43' x 12' x 3' 9" Keel Yawl, Sterling engine.
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 70' x 15' x 9' Auxiliary Schooner, Lathrop engine.
 And many other type yachts and commercial boats.

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 Freeboard 32 in.
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Powered with a four cylinder four cycle, 14-30 h.p. Buffalo with electric starter, generator and distributor.

Speed 16 miles.

Speed 8 miles.

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Boat Department
SOUND MACHINE SHOP, Inc.
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No. 630—For Sale. Auxiliary Schooner 60 ft. by 43 ft. by 15 ft. by 6 ft. 10 in. Four berths in main cabin and two berths in owner's stateroom give comfortable sleeping accommodations for six in owner's party. Enclosed toilet room. Captain's stateroom. New 35 horsepower J. V. B. motor installed in 1921, drives boat eight miles under power. For further particulars, price, etc., apply R. M. Haddock, Naval Architect & Yacht Broker, 50 E. 42nd St., New York City.

WANTED—A 40' cabin cruiser or catboat; must be roomy and in good condition; salt water fittings; sleep four or six. Send photo, price and full description. Wm. C. Smith, 116 North Farson Street, Philadelphia.

Steam yacht, 112' x 16.5' x 7'. Oil burner. Almy boiler, triple expansion engine, 350 H.P. Speed 13 miles. Consumption one barrel crude per hour. In excellent condition. Price very reasonable. P. O. Box 1075, New Orleans.

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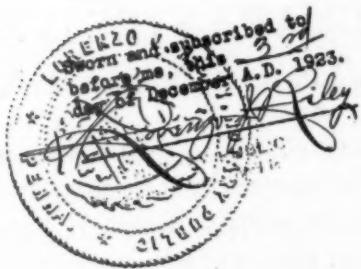
Here's My Affidavit

United States of America,

STATE OF PENNSYLVANIA, }
County of Philadelphia, } ss.

Be it known, That on the day of the date hereof, before me, the subscriber, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of Delaware personally appeared D. C. MAC NEILL, PRESIDENT, MARINE ENGINE COMPANY OF PHILADELPHIA who being duly sworn, according to law, did depose and say, that EVERY PURCHASER OF A RE-BUILT MARINE ENGINE FROM MY COMPANY HAS RECEIVED ONE HUNDRED PERCENT (100%) SATISFACTION THROUGH THEIR PURCHASE.

D. C. Mac Neill
PRESIDENT.
MARINE ENGINE COMPANY,
PHILADELPHIA, PA.



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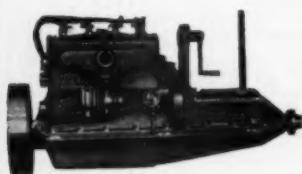
Once upon a time a "client" was a Roman citizen who put himself under the protection of a patron, and while, nowadays, the word encompasses a much wider latitude, we prefer to give the term its original meaning and regard a client as a person who places himself confidently in our care. This firm was founded on the theory that there is no substitute for satisfaction, and the success that has attended an unswerving adherence to that belief is conclusive evidence of its truth. Forty per cent of our business has been transacted with persons who have been recommended to us by users of our rebuilt motors, a fact that should be accorded due consideration by every prospective purchaser of an engine.



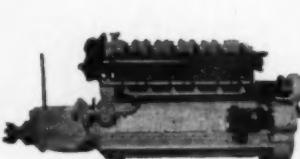
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New and Guaranteed Rebuilt Ma



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"Hall-Scott Marine Engine"



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"Doman"

Advertising Index will be found on page 276

100% Satisfaction!

The filing of a legal document proving beyond question the satisfaction rendered to purchasers of rebuilt motors marks not only an innovation in the trade, but is a typical illustration of our unfailing sense of obligation and responsibility.

Twenty-two months of unremitting effort, made enjoyable by the knowledge that it is producing an army of appreciative customers, not only in the United States but in South America, Europe and the South Sea Islands, has built our business to its present proportions and has resulted in completely revolutionizing the selling of rebuilt engines, a line that we have succeeded in raising to the dignity of an important industry.

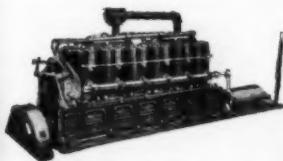
STATION B-O-U-R-S-E SPEAKING!

Our headquarters are in the Machinery Exhibit of the Bourse Building, Philadelphia, and we take this opportunity of broadcasting to every prospective purchaser of an engine, whether he possesses one that he wishes to trade as part payment on a new outfit, or on one of our wonderfully rebuilt motors, the desirability of getting in touch with us.



*My word
is good
D. C. MacNeill*

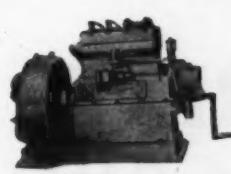
Marine Engines—Accessories



"Automatic"



"Lockwood-Ash"



"Universal 2-25 K. W. Electric Plants"



Hyde & Sterling Propeller
Paragon Gears

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100% Satisfaction!

BUILDERS OF MARINE ENGINES FOR 20 YEARS

LOCKWOOD-ASH MOTOR COMPANY

(INCORPORATED)

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PRESIDENT & GEN. MGR.
C. H. FRANKLIN,
VICE-PRESIDENT
W. L. ASH,
SECRETARY
L. H. LOCKWOOD,
TREASURER

MANUFACTURERS



EXPORT OFFICE
116 BROAD ST.
NEW YORK
HAROLD FEE, MGR.
CABLE ADDRESS "LOCKASH"

JACKSON, MICH.

Golden Rule Selling Policy

(See pages 225 to 228 of this issue)

And We are their representatives
My word is good
D. C. MacNeill

MARINE ENGINE CO.

of PHILADELPHIA

MACHINERY EXHIBIT
PHILADELPHIA, PA.
BOURSE BUILDING

President—D. C. MacNeill
Secretary—H. B. Foster
Treasurer—D. C. MacNeill

Advertising Index will be found on page 276

NAVAL ARCHITECTS & YACHT BROKERS

Thomas D. Bowes, M. E.
NAVAL ARCHITECT AND ENGINEER
Offices:
Lafayette Bldg., Chestnut and Fifth Sts.
PHILADELPHIA, PA.

COX & STEVENS
Naval Architects and Engineers
Yacht Brokers
25 Broadway, Cunard Building
(Morris St. Entrance), New York City
Telephone 2700 Whitehall

B. T. DOBSON
NEW BEDFORD, MASS.
Naval Architect, Yacht Broker
Marine Insurance
Designer of Sailing Craft,
Auxiliaries, and Power Yachts.

E. LOCKWOOD HAGGAS
Naval Architect and Engineer
Designs for Yachts, Motor Boats and
Commercial Vessels
Construction Supervised
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William H. Hand, Jr.
NAVAL ARCHITECT
NEW BEDFORD, MASS.
HAND-V-BOTTOM DESIGNS
Every design, now as always, my personal
work.
Send stamp for catalog illustrating forty-three
typical Hand-V-Bottom designs.

THOMAS S. HANSON
Formerly General Manager, The Elco Works,
Bayonne, N. J.
Yacht and Motor Boat
Brokerage
19 West 44th Street New York
Telephone: Murray Hill 8876

WALTER COOK KEENAN
NAVAL ARCHITECT
602 Liverpool & London & Globe Bldg.
New Orleans, Louisiana
Sail and power yachts. Houseboats and
commercial vessels. Surveys made in all Gulf
Ports.
I have a large number of yachts of every
description for sale, and some for charter.
Cable address: "Walkeen"

Frederick K. Lord
Naval Architect
120 Broadway, New York

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 119 West 40th Street, New York

Yard and Shop Robert Bosch Magneto Perform Well

A recent bulletin described many of the successes of Robert Bosch ignition systems in automobile and motorcycle competitions throughout the world. There seems hardly a country in which these devices are not in use, and the contests in which they were successful on the winning machines range from hill climbing contests to six day races, and speed contests of all kinds. In the United States also many of these Robert Bosch equipments were employed on fast cars, which were successful in speed contests. A new edition of authorized service stations throughout the United States lists many dealers who are equipped to take care of the needs of the users of this type of equipment.

Still Adding Salesmen

Frequent announcements are made by Edward Smith & Company of the addition of new forces to their sales departments. The most recent is H. E. Churchill, who is a man of wide experience in the varnish industry, and Edward Smith looked for large results from him in the marine and other industries. Mr. Churchill will cover the state of Connecticut and some adjacent territory.

British Admiralty Charts Sold in California

The office of the British Consulate General has advised that George E. Butler, 356 California Street, has been appointed agent for the sale of British Admiralty charts in the state of California. The Maritime community which makes use of these publications should take notice of this and avail themselves of this service.

Siamese Ad Asks for Evinrude

That the demand for Evinrude Motors is practically world-wide is indicated by the following want ad which appeared in a July issue of the Siam Observer.

WANTED

WANTED: an Evinrude outboard motor in first class condition.

APPLY TO: care this paper

"P"

11-13
Evinrude Motors are now used in practically every country in the world, and wherever outboard motors are used service stations and complete stocks of parts are kept on hand.

A greatly increasing demand for the new Big Twin Evinrude is reported by the Bangkok agency.

Something for Nothing

An interesting announcement has been made by the Kermath Manufacturing Company of Detroit, which states that during the period of the Motor Boat Show a contest will be promoted, the winner of which will be awarded a brand new Kermath engine, as a result of a successful estimate of the average cost of repairs for Kermath engines in service during the past year.

Please Note

The corporate name of the G. H. Gillespie & Sons Varnish Company of Jersey City, New Jersey, has recently been changed to Gillespie Varnish Company. No change has occurred in the ownership or management of the company which remains as heretofore.

CHARLES D. MOWER

Designer of
SENSIBLE CRUISERS
POWER-SAIL-AUXILIARY
Twenty-five years' practical experience
356 Madison Avenue New York City

FREDERIC S. NOCK NAVAL ARCHITECT

Yacht Builder, Marine Railways,
Storage and Repairs
East Greenwich, Rhode Island, U. S. A.

RIGGS YACHT AGENCY

350 Madison Avenue
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NEW YORK CITY

Telephone Vanderbilt 0596
Cable address "RIGGING"

JOHN H. WELLS NAVAL ARCHITECT

23 Years' Experience
Brokerage Supervision Stock Boats
Telephone: Murray Hill 3810
347 MADISON AVE., NEW YORK

Stearns Little Brother

A lighting unit on your cruiser or in your boathouse or summer cottage insures all of the electric current for the electric iron and cooking as well as lighting that you can use at all times with a minimum of expense. The Stearns Motor Manufacturing Company manufactures a 32 Volt 1500 Watt lighting unit complete with a 90 Ampere Hour Battery. They can also furnish a 110 Volt 1500 Watt 60 Ampere hour unit on special orders.

The Stearns De Luxe is a complete electric generating unit, watercooled, with a positive gear type water pump, overhead valve engine and the very highest quality of design and materials throughout. Rated at 1500 Watts on generator alone, with additional capacity according to the size battery selected, although unit can be run both with and without battery. Gasoline or kerosene can be used as fuel. Bosch High Tension Magneto Ignition to insure easy starting under all conditions. Schebler Carburetor with automatic electric governor. The one-piece perfectly balanced, solid forged crankshaft is mounted on two large SKF double-row ball bearings. Generator is four pole type, compound wound, of such ample proportion that it never overheats. All enclosed with special cam gears, almost noiseless and is free from vibration. The complete plant is of the highest grade construction of any small electric generating unit ever built at the list prices. It is interesting to know that this unit with a few modifications has been manufactured for a number of years by the above company as a farm lighting unit where it has been sold very extensively in all parts of the world.

Bowler Holmes and Hecker in New York and other distributors handling the Stearns Extra Reserve Marine Engines also distribute this lighting unit and are in a position to offer the same good service that they render on the marine engines. A catalog and other literature describing its construction will be cheerfully mailed upon addressing the manufacturers or any of the distributors.

Air and Power Boat Speed King's All GO TO MIAMI

MID-WINTER REGATTA AND NATIONAL AERONAUTIC COMBINED MEET — MARCH 7th and 8th, 1924

World's fastest speed boats competing on the water while overhead in the air, fleet and powerful Seaplanes race for the championship. Prizes include the valuable Curtiss Trophy; honor cups and cash.

Thrilling water contests simultaneously with exciting air races

MOST UNIQUE AND SPECTACULAR EVENTS EVER HELD—TWO DAYS OF SPEED AND SPORT

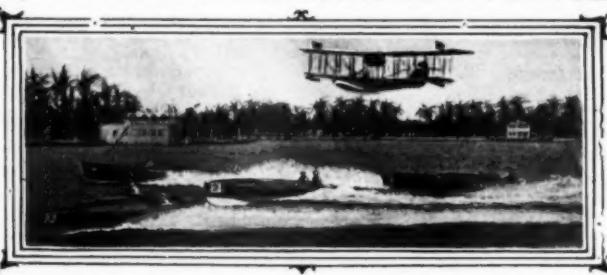
New speed marvels and championship title-holders are entered in the meet. Civilians and U. S. Navy flyers will participate in the Seaplane races, under management of the national Aeronautical Association. Regatta contests sanctioned by American Power Boat Association.

Entire program under auspices of the Chambers of Commerce of Miami and Miami Beach.

Aquaplaning and other aquatic sports and spectacles will be added attractions.

Every summer-time Outdoor Sport in a different environment throughout the Winter, in Miami.

ORLANDO



Write for illustrated booklet,

MIAMI
CHAMBER OF
COMMERCE

Miami, Florida

On the East Coast of Florida—The American Riviera

Radio Through the Binoculars

(Continued from page 44)

acoustic properties which it is possible to secure.

The Western Electric loudspeaker is furnished in two types, one of which may be direct connected to the receiving set, and the other operated through a special power amplifier. The power amplifier loudspeakers, whether of Western Electric, Magnavox or other types, have many important advantages over the direct connected types. The power amplifier is particularly advantageous for yachting needs, as it makes good loudspeaker volume possible from weak signals. Programs do not have to come in with great head phone volume for loudspeaker operation when using the power amplifier.

Another very important feature of using a power amplifier with a loudspeaker aboard a yacht is the partial or sometimes almost total elimination of spark plug noise when using the set under way. The yachtsman invariably closes shop so far as radio is concerned once his engines are running and he is under way. The disagreeable purr of the spark plugs in the head phones, and especially in the loudspeaker, when under way has come to be an accepted fault of yachting radio.

The writer has conducted a number of experiments to eliminate this plug noise, and has found it possible to do so by using a power amplifier. As previously stated, a weak signal when put through a power amplifier will give good volume on a loudspeaker. Furthermore, this same power amplifier will only amplify just what is fed into it. The writer has found that by cutting out the audio frequency of the receiving set and just using radio frequency and detector fed into a power amplifier for signal strength, the plug noise disappeared. In other words, the radio frequency and detector alone pick up but little plug noise, and, consequently, the power amplifier is fed with clear signals and gives out these same clear signals in great volume. Frequently I have listened to programs on a loudspeaker with a Hall-Scott six turning up 1400 r.p.m., and its double set of plugs trying in vain to spoil reception. Entire programs have often been enjoyed without annoyance from plug noise while the cruiser was making port. Radio can be enjoyed under way as well as at anchor.

George Codrington

(Continued from page 39)

owned by his present employer. Mr. Winton was an old marine engineer himself and it was but natural that a strong friendship, first based on mutual admiration, should spring up between the men. During those trips Mr. Winton frequently talked with Codrington regarding his problems in the manufacturing plant and the subordinate's replies were always so well grounded in facts that one day, when Mr. Winton was faced by a particularly vexatious problem, he snapped:

"Send for Codrington!"

"For whom, Mr. Winton?" questioned the lieutenant.

"'Codrington,' replied Mr. Winton. "He's in charge of my yacht."

Codrington answered the summons and before the conference had ended he had been appointed superintendent of the Winton Engine Works, with headquarters in Cleveland. This was in 1916.

Like most American concerns, the Winton company, at that time, was immersed in war work for the Allied governments. One of Codrington's first jobs was to install two 12-cylinder Diesel engines in an American ship. It was the first ship built in this country to be so equipped. In all, Codrington superintended the installation of the mechanical equipment in 16 or 18 ships during the war. That sounds fairly easy. It wasn't.

"When I went to Cleveland the plant had plenty of iron—but no production" he said. "The job at hand was to get out the stuff. The boys in the plant did that. They overcame all the handicaps—and there were plenty of them—and it wasn't long before the engine works were singing a capacity song. Since the end of the war we have had our hands pretty well filled with troubles, but the old firm has gone steadily forward."

Pause here—

Codrington buried his own personality in that last quoted paragraph. Note where he said—

"The boys in the plant did that."

He was talking about an absence of production. He could, very easily, have brought himself into that sentence. He didn't.

(Continued on page 124)



Come to MIAMI BEACH

MIAMI BEACH is the favorite resort of yachtsmen and boat lovers during the winter season. Here it is summer the year around, with the sunny days of a northern June throughout the winter months.

Outdoor life is always enjoyed at its best—never too warm and never too cool for boating, bathing, fishing, polo, tennis, golf or motoring. Variety of entertainment and recreation adds interest to the perfect climate. The annual Southern Regatta will be held at Miami Beach, March seventh and eighth.

The hotels at Miami Beach are faultless and permanent homes are multiplying rapidly as Northern visitors become enamored of the wonderful climate and surroundings of Miami Beach. The residence property has been scientifically developed and you can have a home erected under expert supervision or buy a new house already built.

Come to Miami Beach this season and you will understand the attraction that is making this the favorite resort of the South. Write today for full information.

THE CARL G. FISHER PROPERTIES
MIAMI BEACH FLORIDA



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 119 West 40th Street, New York

PALM BEACH MID-WINTER REGATTA

PALM BEACH YACHT CLUB

**Thursday, February 21st, Events for Cruisers,
Express Cruisers, Sea Skiff and Sailing Boats**

**Friday, February 22nd, Washington's Birthday, events for Class
Hydroplanes and Runabouts. Hydroplane events will be run under
the rules of the Mississippi Valley Power Boat Association with
cash prizes and freight expenses.**

A REAL RACE MEET FOR RACING MEN OVER AN IDEAL COURSE

LET PALM BEACH WELCOME YOU TO LAKE WORTH

Further information from

Com. Alfred W. Wagg
West Palm Beach, Fla.

Gerald T. White
9 Murray Street
New York City

Herbert P. Margerum
Trenton, N. J.

George Codrington

(Continued from page 122)

He didn't—because he is one of those persons who believe that no personal credit attaches to a thing well done. That is why he succeeds. A pat on the back here, a kind word there, a cussing some place else—and he has every one pulling for Codrington.

One of his distributors said:

"On a few occasions Mr. Codrington has called me over the long distance telephone and bawled blazes out of me for something I had failed to do. When he had finished I felt like fighting. Not him—but every one else. I couldn't fight with George Codrington. He wouldn't let me, in the first place. And, in the second place, if I did I would know, while I was doing it, that I was scrapping with my best friend.

"He's never a boss—always a friend. I know that, and every one else who works with him knows it. There isn't a man in the organization who wouldn't work twenty-four hours a day, for an indefinite period, if it was to help out Codrington. I know that, because I've seen them do it. I've done it, myself."

During the war period the value of a selling argument was about on a par with the present German mark.

"Have you got it? When can we get it?" Those cries sounded from buyers' lips.

But after the war—

Business depended upon a product's integrity, but more than that, it depended upon the ability of those responsible for the product to sell it.

George Codrington had foreseen that condition and had prepared himself for it. In his plant he had been watching various young men. He knew that they knew their product—were enthusiastic over it and, with the proper backing, could sell it. Immediately with a tightening in the market, he shot these young men out over the country. He located them in big distributing points, handed them selling talks, merchandise and his own backbone and told them to go to it.

They did.

"Why did you select men from your own plant?" Codrington was asked.

"They were logical men," he answered. "They knew the Winton engine. Knew all about it. And I knew them."

"I knew them." That was the important point. Codrington believed the company would be given better representation by the selection of such men than by choosing strange distributors at faraway points. He was right. His sales problem was answered.

George Codrington is an enthusiast. He throws everything he's got into the work immediately at hand; but, unlike a lot of enthusiasts, he never loses sight of the main road ahead. His is a directed enthusiasm. He believes, implicitly, in the Diesel engine, saying it is to the marine field what the motor was to the automobile industry twenty years ago.

He is of the outdoor type. No bent frame from ceaseless days over a drafting board. There is the sparkle of health in his eye, the tang of salt winds in his greeting. He is the sort of chap who would drive the launch to the end of the lake, beach it there and then—

"Sound, sweet sleep on a balsam bed
A dip in the lake at morn,
A climb to the crest of Eagles' Nest,
A toot of the breakfast horn,
A laugh at the quip of comrades brown,
A reach for the reel and rod,
And a swinging pace
For the streams that race
Down the hills of the land of God.
A varied wade through a rocky maze
By noon a weight in the creel,
A venison snack,
A drowse, and back
With a heart of hope and weal—
This may list low
To the men who know
But the Avenue's worry and strife,
But if I may
Just let me say
By gad, I call this Life."

I've forgotten the name of the poet who wrote those lines—but I thought of them as I sat, and listened, and watched—George Codrington.

Havana Motor Boat Regatta

March 15th and 16th

HAVANA, Cuba, and the Habana Yacht Club, extend a cordial invitation to all motor boatmen and sportsmen to attend the Annual Motor Boat Regatta to be held at Havana on March 15 and 16, 1924

Races have been arranged for Express Cruisers and Runabouts. Entries have already been received for the runabout classes as follows:

SWEEPSTAKES—LIBERTY CLASS

Open to Displacement boats of over 25 feet in length powered with motors of not over 1350 cubic inches and Displacement boats of over 32 feet in length powered with motors of not over 1650 cubic inches piston displacement.

(Qualifying speed: 40 miles per hour.)

Boat	Owner	
Adieu II	Webb Jay	Chicago, Ill.
Musketeer	Horace Dodge	Detroit, Mich.
Baby Cub	Howard Lyons	New York City
Sue J	Webb Jay	Miami, Florida
Peerless Irene	V. A. Scarles	Atlantic City
Nine Ninety Nine	Edsel Ford	Detroit, Mich.
Adieu I	J. A. Mellish	New York City
Mary	Col. E. H. R. Green	Terrell, Texas

GENTLEMEN'S RUNABOUT CLASS

Open to Displacement boats of over 25 feet in length powered with motors of not over 825 cubic inches.

(Qualifying speed: 35 miles per hour.)

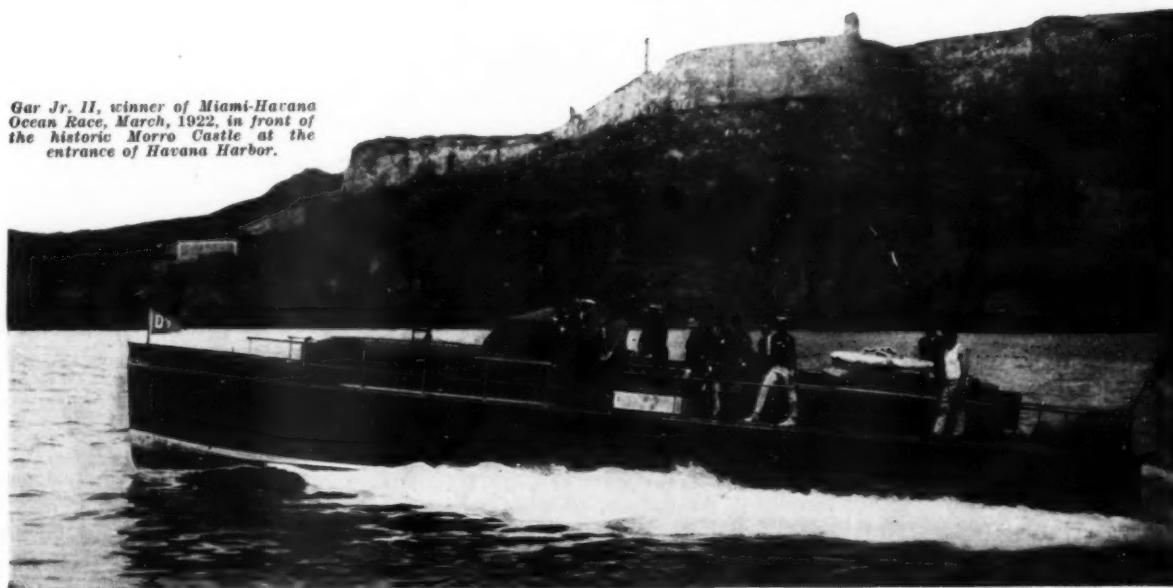
Boat	Owner	
Miss Mary	Ed. Grimm	Buffalo, N. Y.
Bear Cat I	Ed. Gregory	Detroit, Mich.
Bear Cat II	Wilbur Young	New York City
Bear Cat III	E. M. Gregory	Detroit, Mich.
Bear Cat IV	Wilbur Young	New York City
Miss Great Lakes	W. C. Morehead	Milwaukee, Wis.
Wilgold	J. A. Williams	Buffalo
Jerry	J. R. McCarthy	Detroit

Full details may be obtained from

SENR RAFAEL POSSO, care of Habana Yacht Club, Havana, Cuba

or from

The Editor of MoToR BoatinG



Gar Jr. II, winner of Miami-Havana Ocean Race, March, 1922, in front of the historic Morro Castle at the entrance of Havana Harbor.

CATALOG FREE
Save Money—
Order by Mail



BETTER BOATS AT LOWER PRICES
In Stock, Ready for Shipment

THOMPSON
BETTER-BUILT
BOATS

CANOES—Strong, swift, safe and durable. Three models and four lengths to choose from. Finished in any color or combination of colors. Sponson canoes that are non-sinkable. Sail and lee-boards for canoes.

ROWBOATS—Roomy and handsome; designed for safety. Stand years of wear and tear and still look good. Sturdy Livery Rowboats. Family rowboats. Fish boats. River skiffs and flat bottom boats, finished or knockdown.

OUTBOARD MOTOR BOATS—Special construction resists vibration; trim right with any load at full speed. A model for every purpose—standard model, lake model, square stern canoes and fish boats.

MOTOR BOATS—With or without engine in 16, 18, 20 and 26 ft. lengths. More speed with less power. For lakes, rivers, shallow water and weeds.

The finest, fastest and best "V"-bottom MOTOR BOATS, at real money-saving prices. Also light weight BEACH MODEL which two men can easily carry. May be used in shallow, weedy water or run over logs and rocks—or full speed up a sloping beach—without injury to propeller. Store it in the cottage when you leave—it will go through ordinary door when carried on its side. Engine is enclosed in rain-proof hatch.

Please state kind of boat
in which you are interested

THOMPSON BROS. BOAT MFG. CO.
408 Ellis Ave. PESHTIGO, WIS.

"Builders of 'Better-Built'
Boats for Seventeen Years."

Pigs in Pokes

(Continued from page 42)

lock over the final disposition of their gruesome purchase would result in Gibney and McGuffey harkening to reason and accepting a profitable compromise. If it should cost him a leg, Captain Scraggs was resolved to make those two corpses pay for the repairs in the Maggie's engine room.

Following his departure, Messrs. Gibney and McGuffey sat on deck smoking and striving to fathom the hidden design back of Scraggs's offer to buy them out. "He's got his lines fast somewhere—you can bank on that," was Mr. Gibney's comment, for he knew that Scraggs never made a move that meant parting with money until he was certain he saw that money, somewhat augmented, returning to him. "While we was away he rigged up some kind of a deal, Bart. It stands to reason it was a mighty profitable deal, too, otherwise old Scraggy wouldn't have flew into such a rage when I blocked him. My imagination may be a bit off the course at times, Bart, but in general, if there's a dead whale floatin' around the ship I can smell it."

"What do you make out o' that fat Chinaman cruisin' down the bulkhead in an express wagon an' another Chinaman settin' up on the bridge with him?" McGuffey demanded. "Seems to me they're comin', bows on, for the Maggie."

"They tell me to deduct somethin', Bart. Wait a minute till we see if they're comin' aboard. If they are—"

"They're goin' to make a landin', Gib."

"—then I deduct that this body-snatchin' Scraggs—"

"They're boardin' us, Gib."

"—has arranged with yon fat Chinaman to relieve us o' the unwelcome presence of his defunct friends. He's gone an' hunted up the relatives an' made 'em come across—that's what he's done. The dirty, low, schemin' granddaddy of all the foxes in Christendom! Wasn't I the numbskull not to think of it myself?"

"Tain't too late to mend your ways, Gib. I don't see Scraggs nowhere," Mr. McGuffey suggested promptly. "All that remains for me an' you to do, Gib, is to imagine the price, collect the money an' declare a dividend. Quick, Gib! What'll we ask him?"

"I'll fish around an' see what figger Scraggs charged him," the cautious Gibney replied, and stepped to the rail to meet

Gin Seng, for it was indeed he.

"Sow-see, sow-see, hun-gay," Mr. Gibney saluted the Chinaman in a facetious attempt to talk the latter's language. "Hello, there, John Chinaman. How's your liver? Captain he alleee same get tired; he no waitee. What's mallah, John. Too long time you no come. You heap lazy all time."

Gin Seng smiled his bland, inscrutable Chinese smile. "You ketchum two China boy in box?" he queried.

"We have," boomed McGuffey, "an' beautiful specimens they be."

"No money, no China boy," Gibney added firmly.

"Money have got. Too muchee money you wantee. No can do. Me pay two hundred dollah. Five hundred dollah heap muchee. No have got it."

"Nothin' doin', John. Five hundred dollars an' not a penny less. Put up the dough or beat it."

Gin Seng expostulated, lied, evaded, and all but wept, but Mr. Gibney was obdurate, and eventually the Chinaman paid over the money and departed with the remains of his countrymen. "I knew he'd come through, Bart," Mr. Gibney declared. "They got to ship them stiffs to China to rest alongside their ancestors or be in Dutch with the sperrits o' the departed forever after."

"Do we have to split this swag with that dirty Scraggs?" McGuffey wanted to know. "Sein' as how he tried to give us the double cross—"

"We'll fix Scraggy—all ship-shape an' legal so's he won't have no comeback. Quick, grab some o' them empty potato crates an' pile 'em here where the stiffs was lyin' an' cover 'em up with the tarpaulin. I don't want Scraggy to think the corpses is gone until I've hooked him good and plenty."

The stage was set in a few minutes and the conspirators set themselves to await the return of Scraggs. They had not long to wait. Upon his arrival at Gin Seng's place of business, Captain Scraggs had been informed that Gin Seng had gone out twenty minutes before, and further inquiry revealed the portentous fact that he had departed in an express wagon. Consumed with misgivings of disaster, Scraggs returned to the Maggie as fast as the California Street cable car and his

(Continued on page 128)



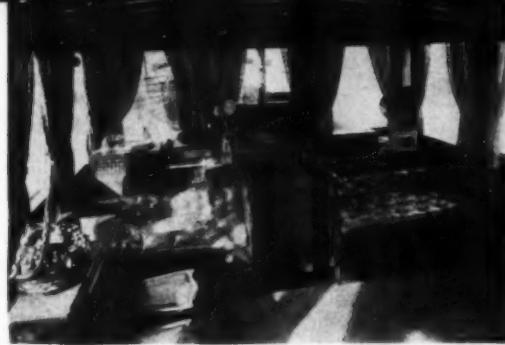
Priscilla, a 65' Hacker designed cruiser, recently built for Mr. Kenneth M. DeVos of Detroit. At the right is a view of the roomy deckhouse, looking aft.

DEFOE Boats are always Quality Boats, no matter what their size or type. No boat builder has better or greater facilities; no builder offers a more complete service to the architect or owner.

We build all sizes and types of boats, from a small runabout or commercial boat up to yachts over 100 ft. in length. We have the experienced workmen, the plant capacity and the equipment to handle any number and any size, in either steel, wood or composite construction.

It will be a pleasure to quote from your plans, or to submit sketches by our own staff developing your ideas of the boat you want.

Skylark II, 55' x 13' cruiser of Hacker design, built during 1925 for Mr. George Harrison Phelps of Detroit. Skylark's deckhouse is shown at the right.



Defoe BOAT AND MOTOR Works

JEFFERSON & RIVER STS.

BAY CITY, MICH. U.S.A.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 119 West 40th Street, New York

V
3
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J
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The plug with
the Green
Jacket



Splitdorf Model SS-4 Magneto



Splitdorf Lighting Generator

Splitdorf Spark Plugs—made with India Ruby MICA insulation and heavy electrodes, these plugs never chip, crack or break—they outlast the life of the engine.

Splitdorf Magnets—famous as the winning ignition in the Pulitzer Trophy and Schneider Cup races, and all other forms of service where the utmost in power, performance and dependability is demanded.

Splitdorf Generators—a compact unit that meets lighting requirements with the utmost in dependable service.

Equip with Splitdorf and be certain of Splitdorf **DEPENDABILITY**.

SPLITDORF ELECTRICAL CO.

Newark, N. J., U. S. A.



Pigs in Pokes

(Continued from page 126)

legs could carry him; as he came aboard his anxious glance sought the tarpaulin-covered boxes on deck and at sight of them his mental thermometer rose at once. In the cabin he found Mr. Gibney and McGuffey playing cribbage. They laid down their hands as Scraggs entered.

"Well, are you all cooled out an' willin' to listen to reason, Scraggsy, old business man?" Gibney greeted him cheerfully.

"None more so, Gib. If you've got a proposition to submit, fire away."

"That's comfortin', Scraggsy. Well, me an' Bart's been chewing over your proposition to buy out our interest in them two Chinks, an' as the upshot of our talk we made up our minds to sell, but not for no measly little five bucks' profit. Now, Scraggsy, you old he-devil, on your honor as between shipmates, you got to admit five dollars ain't hardly worth considerin'. Come down to earth now. You know blamed well you're expectin' to pull out with a neat profit an' that you can afford to boost that five-dollar ante. What would you consider a fair price for a one-third interest? Be honest an' fair, Scraggsy."

Captain Scraggs sat down, beaming. With Mr. Gibney in this frame of mind he knew he could do anything with him. "Well, now, Gib, my dear boy, if a man was to get twenty-five dollars for his interest, I should say he oughtn't to have no kick comin'. I know I wouldn't."

"If you was sellin' your interest—imagine, now, that you're me an' I'm you—would you be satisfied to sell for twenty-five dollars?"

"I certainly would, Gib, my boy. Why, that's almost four hundred per cent. profit, an' any man that'd turn up his nose at a four hundred per cent. profit ought to go an' have his head examined by a competent nut doctor."

"Well, if you feel that way about it, all right, Scraggsy." Mr. Gibney replied slowly and put his hand in his pocket. "As I remarked previous, while you're away me an' Bart gets chewin' over the proposition an' decides we'll sell. An' to show you what a funny world this is, while me an' Bart's settin' on deck a-waitin' for you to come back an' close with us, along breezes a fat old Chinaman in an express wagon an' offers to buy them two cases of Oriental goods. He makes me an'

Mac what we considers a fair offer for our two-thirds. You ain't around to offer suggestions an' as it's a take-it-or-leave-it proposition an' two-thirds o' the stock is represented in me an' Mac an' accordin' to your rulin' the majority's got the decidin' vote, we ups an' smoothers his offer. Lemme see, now," he continued, and got out a stub of lead pencil with which he commenced figuring on the white oilcloth table cover. "We paid twenty dollars for them two derelicts an' a dollar towage. That's twenty-one dollars, an' a third o' twenty-one is seven, an' seven dollars from twenty-five leaves eighteen dollars comin' to you. Here's your eighteen dollars, Scraggsy, you lucky old vagabond—all clear profit on a neat day's work, no expense no investment, no back-breakin' interest charges or overhead, an' sold out at your own figger."

Captain Scraggs's face was a study in conflicting emotions as he raked in the eighteen dollars. "Thanks, Gib," he said frigidly.

"Me an' Gib's goin' ashore for lunch at the Marigold Café. McGuffey announced presently, in order to break the horrible silence that followed Scraggsy's crushing defeat. "I'm willin' to spend some o' my profits on the deal an' blow you to a lunch with a small bottle o' Dago Red thrown in. How about it, Scraggs?"

"I'm on." Scraggs sought to throw off his gloom and appear sprightly. "What'd you peddle them two cadavers for, Gib?"

Mr. Gibney grinned broadly but did not answer. In effect his grin informed Scraggs that *that* was none of the latter's business—and Scraggs assimilated the hint. "Well, at any rate, Gib, whatever you soaked him, it was a mighty good sale an' I congratulate you. I think mebbe I might ha' done a little better myself, but then it ain't every day a feller can turn an eighteen-dollar trick on a corpse."

"Comin' to lunch with us?" McGuffey demanded.

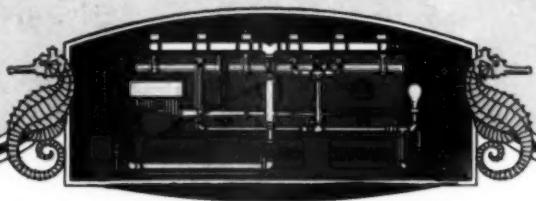
"Sure. Wait a minute till I run forward an' see if the lines is all fast."

He stepped out of the cabin and presently Gibney and McGuffey were conscious of a rapid succession of thuds on the deck. Gibney winked at McGuffey.

"'Nother new hat gone to hell," murmured McGuffey.



**For Yachts of Highest Quality
THE STANDARD MARINE ENGINE
Exhibiting at the National Motor Boat Show**



Announcing

the exhibition of Standard Engines at the 1924 National Motor Boat Show where we will present the latest developments in Marine design. Slow- and medium-speed models will be on display as well as the new Standard high-speed engine which has been creating such wide-spread interest. Your inspection of our booth, located just to the right of the main entrance, is cordially invited.

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STEARN'S

EXTRA RESERVE

FRANKLY this is a picture book of boats. Boats big and little, boats new and old, boats fast and slow,—a whole fleet of typical cruisers, runabouts and auxiliaries from different parts of the world, all powered with Stearns Extra Reserve Marine Engines.



Real boats are always interesting to the man who loves the water. And these are real boats in real water, reproduced from unretouched photographs—successful boats that are giving their owners genuine satisfaction. We have selected a wide variety in size and type to match the interests and the requirements of every boat owner and builder.

Look them over and you'll probably find a boat like your own, or like the one you plan to have next time. Notice the dimensions and the speeds. We only regret that we haven't more room to show you a few more letters from their happy owners.



This is Joebil, the 36 ft. cruiser mentioned in Mr. Perrine's letter above. The original engine drove Joebil 10 miles an hour, but with a Stearns MDU she maintains a speed over 14 miles on a measured course.



Lotte II is a 61 foot yacht of heavy steel construction built in Germany and owned by Lee Shubert, theatrical magnate. Does 10 1/2 miles per hour with the model MDU Stearns.

MARINE ENGINES

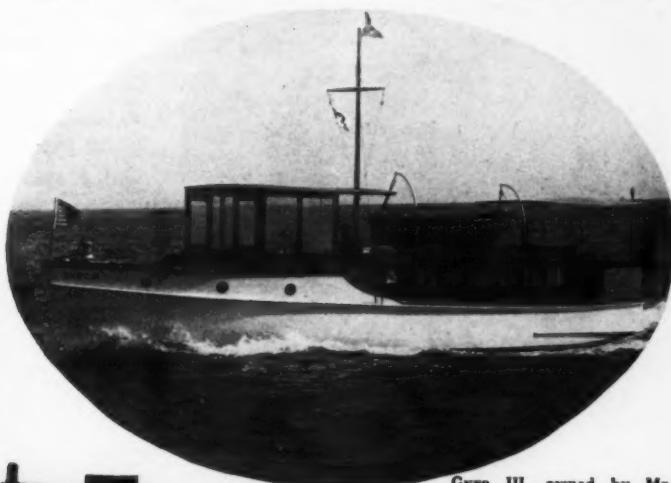
Our idea in presenting this collection of Stearns powered craft is to show you the great adaptability of Stearns Extra Reserve Marine Engines for every type of boating service. We manufacture eight marine models, for medium speed and high speed, ranging in power from 25 to 150 H. P. In this line you are pretty sure to find just the right engine for your boat. That's important because you want plenty of power, without the expense of buying and operating a bigger engine than you need.

The data given with each picture will help you in judging what a Stearns engine will do in your boat. Furthermore our Engineering Department is at your service if you want any more exact details as to power and performance of any Stearns Engine under specified conditions. They don't have to guess because they have the experience of hundreds of installations to draw on, together with complete records of dynamometer tests conducted on every Stearns Engine before it leaves our plant.

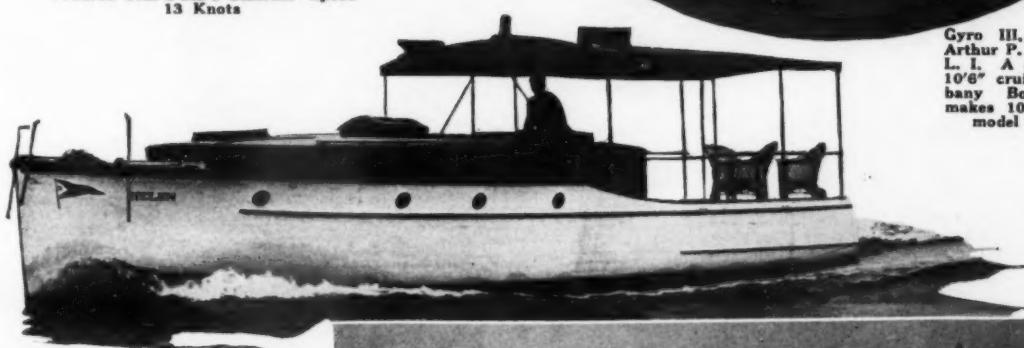
These pages show a typical array of cruisers with medium speed Stearns Engines. We are particularly proud of the fact that the Stearns is often selected to repower an old hull, and it never fails to deliver more speed at a lower operating cost than the original engine.



Thistle, a 33 1/2 x 9' cruiser owned by H. O. Wiles, Auckland, New Zealand. Powered with a MDU Stearns. Speed 13 Knots



Gyro III, owned by Mr. Arthur P. Davis, Edgemere, L. I. A substantial 43' x 10'6" cruiser built by Albany Boat Corp., and makes 10 1/2 miles with a model MDU Stearns



The 46' x 13' cruiser Helen, built by Hubert Johnson and owned by William Johnson, Bay Head, N. J. Driven by a Stearns MDU. Speed 12 m.p.h.



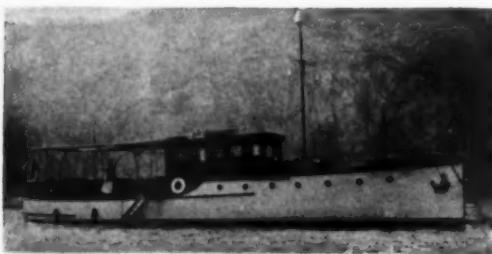
Isabelle W, a fast 49' x 11' cruiser owned by Geo. V. Greininger, Los Angeles, Calif., has a twin screw installation of Stearns Model MDU engines. Speed 15 m.p.h.

STEARNS

EXTRA
RESERVE

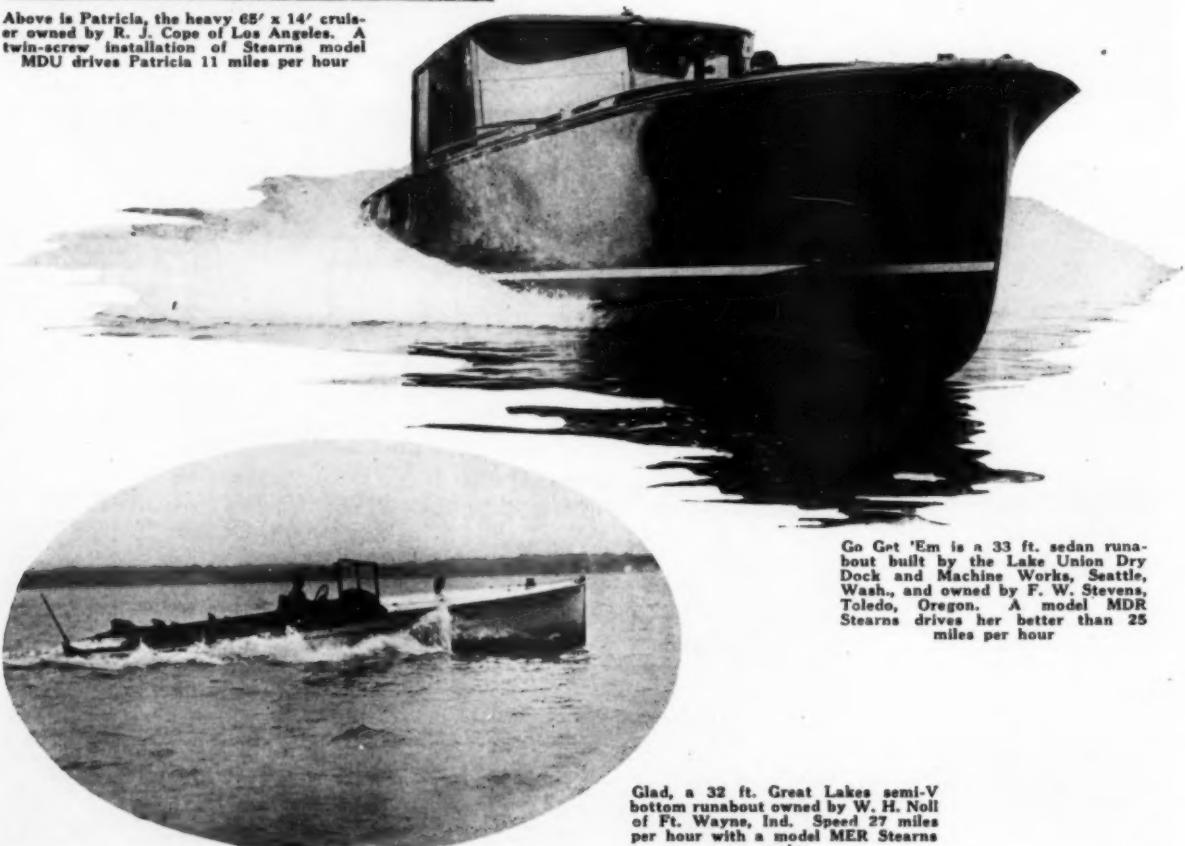
Three of the Stearns marine models are special high speed engines for racing boats, speed runabouts and express cruisers. They are designed particularly for operation at high revolutions. Besides many typical speed features in their design, they are very light in weight, with aluminum crankcase, oil base pan and reverse gear housing, light weight pistons, special valve timing, high compression, high pressure lubrication, etc.

Although these engines are fast and light, they have the same sturdy oversize working parts as our medium speed engines. Nothing is sacrificed in strength or reliability. They are built to run steadily and continuously at 1600 to 1850 revolutions per minute. These engines will stand up at this speed because they have a wide margin of excess strength in every working part and they are so finely balanced that destructive vibration is entirely eliminated.



Above is *Patricia*, the heavy 65' x 14' cruiser owned by R. J. Cope of Los Angeles. A twin-screw installation of Stearns model MDU drives *Patricia* 11 miles per hour

The Stearns model MER is a 16 valve engine—two inlet valves and two exhaust valves in each cylinder. Although rated 150 H. P. at 1850 r.p.m. it will run at higher speeds, with a steady increase of power.



Go Get 'Em is a 33 ft. sedan runabout built by the Lake Union Dry Dock and Machine Works, Seattle, Wash., and owned by F. W. Stevens, Toledo, Oregon. A model MDR Stearns drives her better than 25 miles per hour

Glad, a 32 ft. Great Lakes semi-V bottom runabout owned by W. H. Noll of Ft. Wayne, Ind. Speed 27 miles per hour with a model MER Stearns engine

MARINE ENGINES

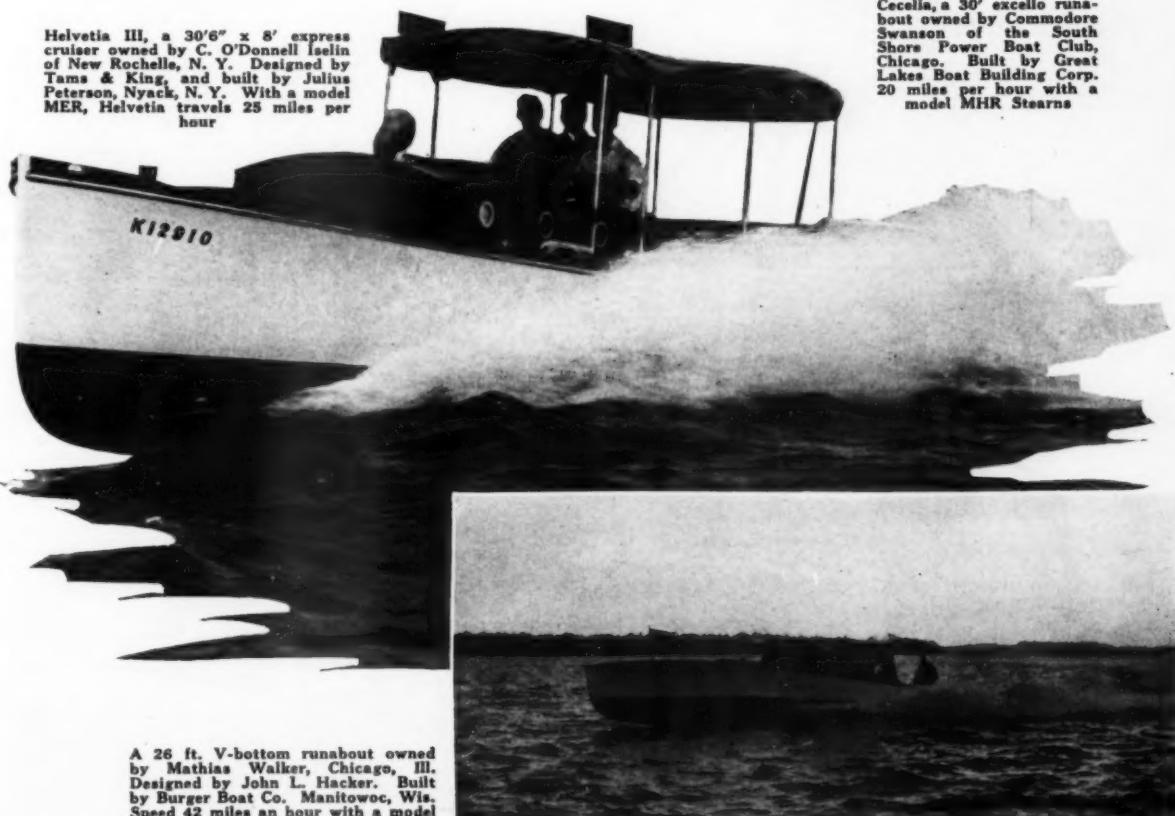
Just as the boats on these pages prove that the Stearns high speed engines make successful boats, so have we proven to the world that it isn't necessary to charge an exorbitant price to produce a reliable high speed power plant. When you study the specifications and construction, you will realize that they are high grade engines; then if you are seriously interested in a high speed boat you will compare the prices with other first class high speed engines and find a pleasant surprise in the fact that they cost no more than ordinary medium speed engines of less power and greater weight.

We have a great advantage over the majority of marine engine builders because our testing room is equipped with seven Sprague electric dynamometers. Not only can we reproduce the conditions of actual service in developing a new model, but every Stearns is run on the dynamometer for several hours under full speed and load. Such an engine is certain to develop its rated power, and to be ready for full service. In addition, before shipment, all engines are run on a special marine test stand having an angle of 11°. Here the engine passes the final test where the actual operating conditions are reproduced.



Cecelia, a 30' excello runabout owned by Commodore Swanson of the South Shore Power Boat Club, Chicago. Built by Great Lakes Boat Building Corp. 20 miles per hour with a model MHR Stearns

Helvetia III, a 30'6" x 8' express cruiser owned by C. O'Donnell Iselin of New Rochelle, N. Y. Designed by Tams & King, and built by Julius Peterson, Nyack, N. Y. With a model MER, Helvetia travels 25 miles per hour



A 26 ft. V-bottom runabout owned by Mathias Walker, Chicago, Ill. Designed by John L. Hacker. Built by Burger Boat Co., Manitowoc, Wis. Speed 42 miles an hour with a model MER 150 H. P. Stearns

STEARNS

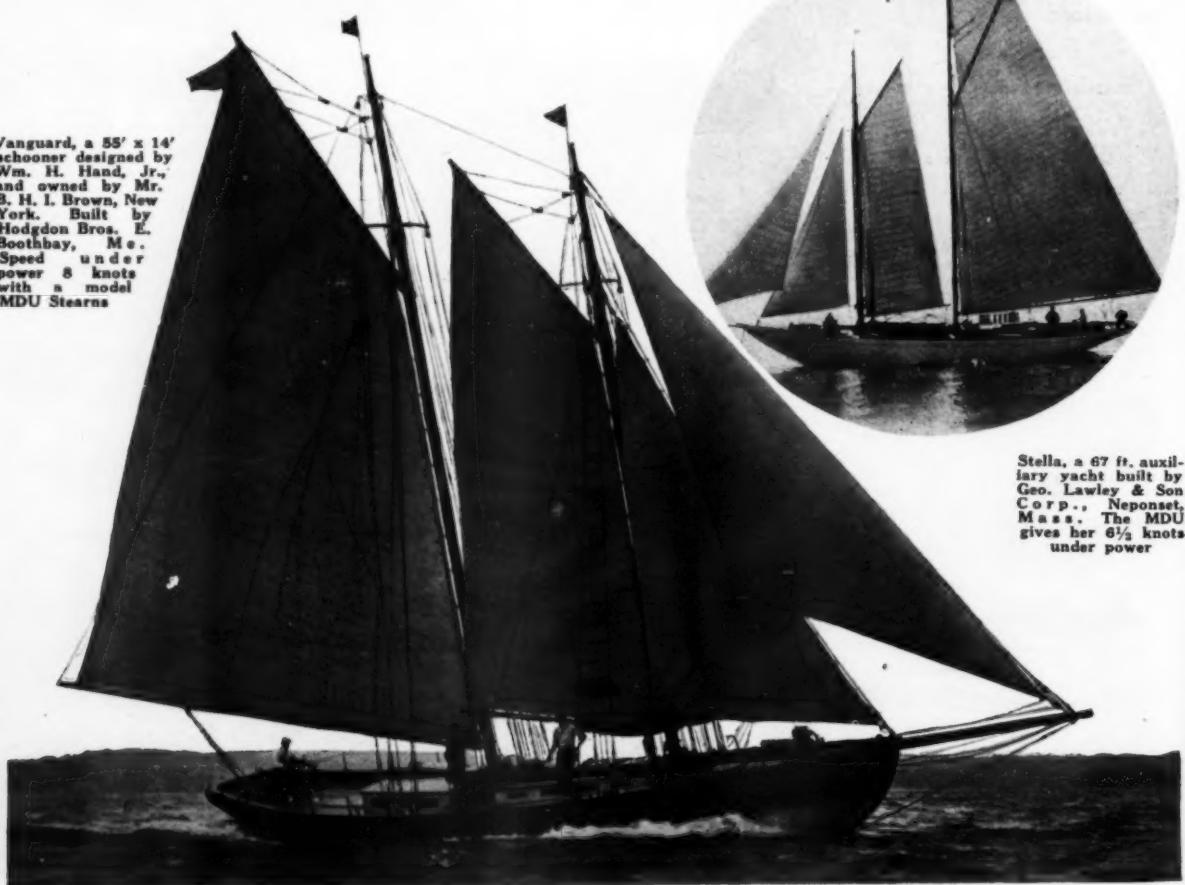
EXTRA RESERVE

What is more beautiful or graceful than a big schooner yacht under sail? No wonder this type has maintained its favor against the advancing popularity of strictly power boats. But when the wind dies down and you are in a hurry to get home, there's great satisfaction in knowing that you have a Stearns Extra Reserve Engine down below. Stearns Engines have been particularly successful in pleasing the owners of many big auxiliaries. Notice that the Stearns engines are used by such successful designers of auxiliaries as Wm. H. Hand, Jr., on the Atlantic seaboard, and L. E. Geary on the Pacific.



This 39' x 12' schooner produced by Carl N. Beetle, New Bedford, Mass., is powered by a model MAU Stearns

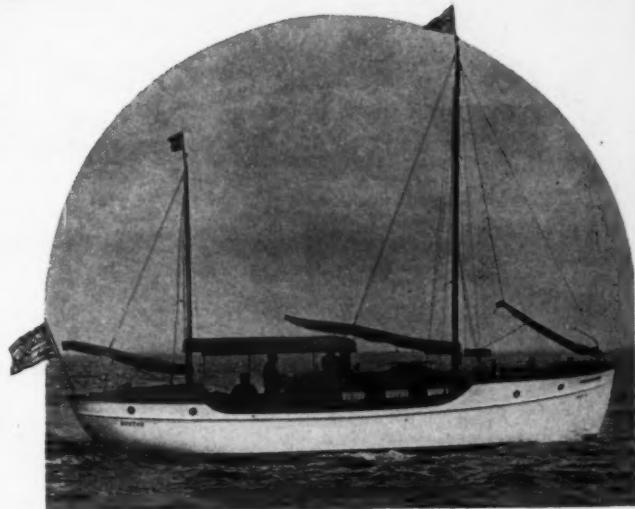
Vanguard, a 55' x 14' schooner designed by Wm. H. Hand, Jr., and owned by Mr. B. H. I. Brown, New York. Built by Hodgdon Bros. E. Boothbay, Me. Speed under power 8 knots with a model MDU Stearns



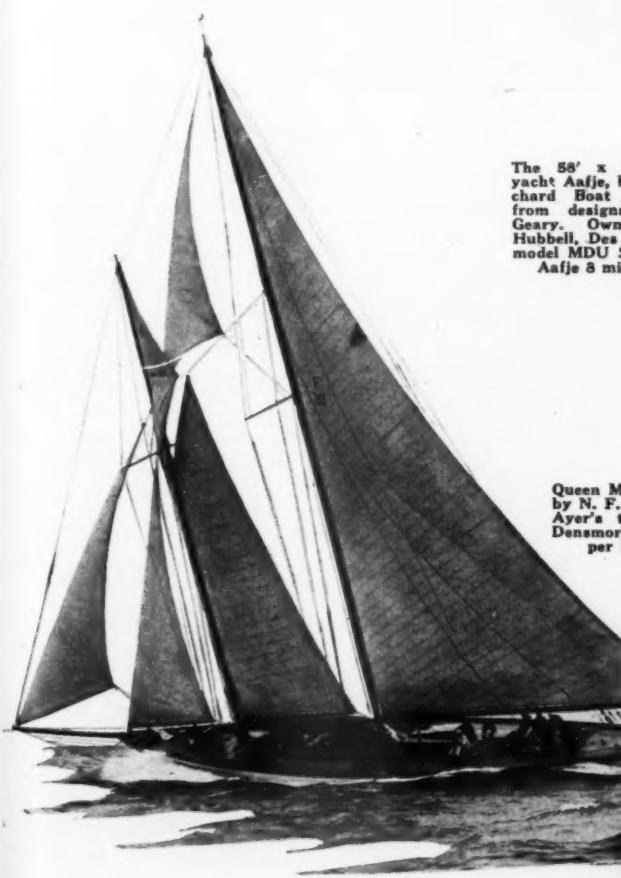
Stella, a 67 ft. auxiliary yacht built by Geo. Lawley & Son Corp., Neponset, Mass. The MDU gives her 6½ knots under power

MARINE ENGINES

Some predict the auxiliary is the coming type of boat, but whether the sails are auxiliary to the engine as in the case of Seremanda, or where the engine itself is the auxiliary power as in most cases, one of the medium duty Stearns engines makes an ideal power plant because it furnishes reliable, economical power at the lowest first cost and the lowest operating cost. Always ready to start, easy to operate, automatic and dependable in lubrication and every other function, they are the last word in trouble proof service.



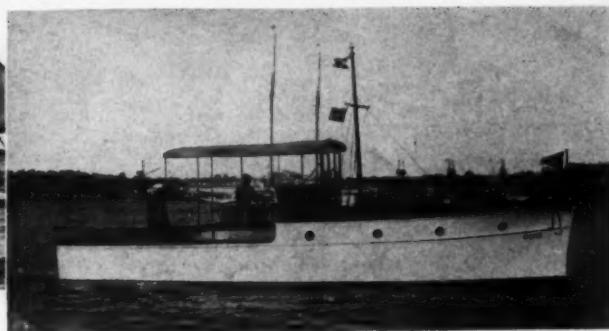
Seremanda, a 41 foot auxiliary owned by J. F. Donahue, Boston, Mass. Powered with a model MDU Stearns Engine



The 58' x 15' schooner yacht Aafje, built by Blanchard Boat Co., Seattle, from designs by L. E. Geary. Owned by F. C. Hubbell, Des Moines. The model MDU Stearns drives Aafje 8 miles an hour



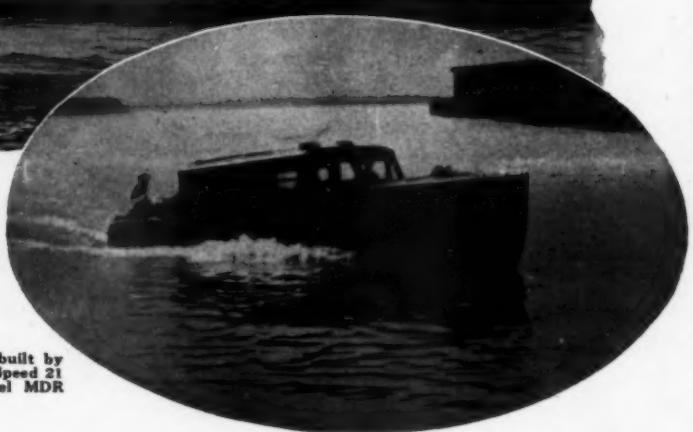
Queen Mab is a 77 ft. Herreshoff yacht owned by N. F. Ayers, Boston, Mass. An MEU in Mr. Ayer's towing cruiser "Lynx III," built by Densmore, tows this large yacht over 8 miles per hour. "Lynx III" is shown below



STEARNS EXTRA RESERVE MARINE ENGINES



The limousine runabout "Gladful" owned and built by Everett Hunter Boat Works, McHenry, Ill. It is 36' x 7', carries eight passengers and makes 28 miles per hour with a model MDR Stearns. Gladful is a thorough success as a fast passenger ferry



A 35 ft. limousine runabout built by T. T. Youngfelt of Chicago. Speed 21 miles per hour with a model MDR Stearns Engine

In this picture story of Stearns powered boats we have only tried to express one idea—namely that Stearns Extra Reserve Marine Engines have absolutely demonstrated their successful qualities in hundreds of satisfactory installations. As a boatman or engine buyer, that is the first thing you want to know.

But there's a much bigger story in the superiorities of Stearns design, in the perfection of the Stearns factory equipment, and in the facts about Stearns quantity production which enables us to build and sell you a better engine for less money than is possible for a smaller producer.

Let the nearest Stearns dealer tell you the rest of the story. Or write for the latest catalog with prices and tell us about your boat, if you want the help of our Engineering Department.

STEARNS MOTOR MANUFACTURING CO., Ludington, Mich.

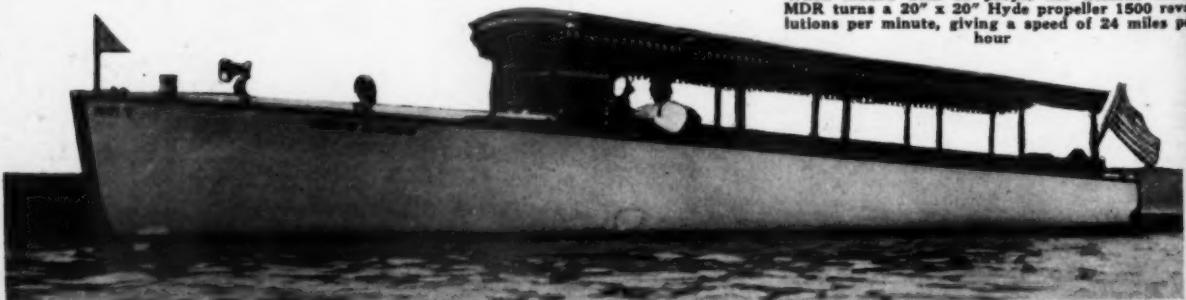
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Miss Doris, a fast passenger boat, 46' x 8'6", owned by Capt. G. S. Bolton, Alexandria Bay, N. Y. When loaded with 30 people her Stearns Model MDR turns a 20" x 20" Hyde propeller 1500 revolutions per minute, giving a speed of 24 miles per hour



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10 Certainties!

1 Sport Twin — 40-pound champion of light-weight, two-cylinder motors. Quick starting, quiet-running, vibrationless. Built-in-flywheel magneto. Automatic Reverse and Safety Tilt-up.

2 Two H. P. Single. A sturdy motor for hard knockabout service. Low in initial and upkeep cost.

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3 Big Twin. Fastest, most powerful outboard motor built. Four H. P. — drives average boat 10 to 11 miles an hour.

4 Twin Inboard. For permanent installation in launches and canoes. Develops speed of 12 miles an hour in 18 foot canoe.

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7 More Evinrude Motors have been sold than any other make.

8 The Evinrude line is the only complete line of small boat motors made, including both one and two cylinder models of both the outboard and inboard type.

9 To most people all outboard motors are Evinrudes. Sportsmen generally insist upon the genuine.

10 Evinrude has led the field for 14 years. Each Evinrude model represents the climax of engineering skill in its particular class of design.

See these motors at the New York Motor Boat Show — or at your sporting goods or hardware dealer's. Write for our latest illustrated catalog describing complete line of Evinrude small-boat motors.

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RUDIE

On the Seven Seas-



MANY an American travelling in foreign lands, has felt a thrill at sight of an Evinrude purring away busily at the stern of some native boat. For Evinrudes are found in the most unexpected places. Explorers have used them in the Arctic waters of the Hudson Bay country. Alligator hunters on the jungle streams of South America have depended upon their unfailing power.

In Honolulu, off the beach at Waikiki, the Evinrude is seen clamped to the side of native outrigger canoes. Even in the international waters of the Panama Canal, Evinrude-driven craft scurry back and forth in the wake of giant ocean liners. On the lazy waters of the Thames, Evinrude-powered boats glide swiftly by the slow-moving English punts and barges. Above the romantic melodies of Venetian gondoliers one hears the matter-of-fact "put-put" of the Evinrude.

Truly, the Evinrude is the world's small-boat motor—found on navigable waters everywhere.

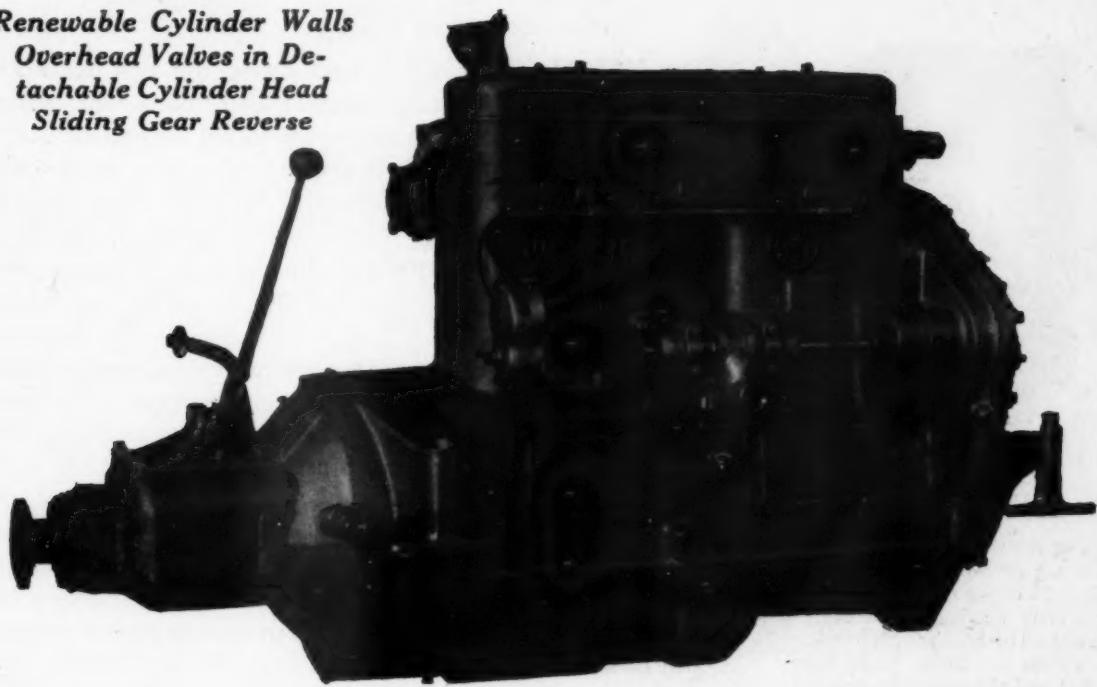
EVINRUDE



W-S-M

MARINE ENGINES

*Renewable Cylinder Walls
Overhead Valves in Detachable Cylinder Head
Sliding Gear Reverse*



FOR several years, the W-S-M Marine Engine has been manufactured by The Wellman-Seaver-Morgan Company, and sold under the name of the J. V. B. Marine Engine. In continuing its manufacture and sale as the W-S-M Marine Engine, no change other than in name has taken place. It is the same engine from the same builder, refined and improved of course wherever possible.

For over half a century the Wellman-Seaver-Morgan organization has been known throughout the world for the quality of its machinery and engineering products. Its plant facilities are second to none in the marine industry and it is backed by a capital of more than five million dollars. Never was a marine engine produced under more favorable conditions—favorable to quality as well as economy in production.

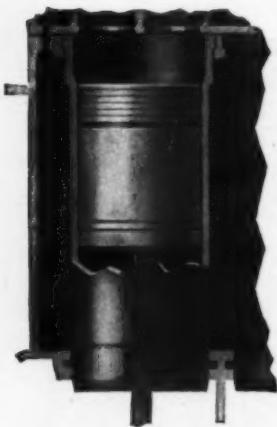
Complete catalog on request

Wilbur H. Young, Sole Distributor (U. S. & Foreign)
522 Fifth Avenue, New York City
Manufactured by The Wellman-Seaver-Morgan Company



W-S-M MARINE ENGINES

NO one can deny the advance in automotive engineering. With all the vast production of cars and trucks, the constant improvement of engines and engineering, and the great development of aircraft engines, it is a fact that typical marine engine design shows little advance over past years. True, there are several fine marine engines now offered, but at prices which are prohibitive for the average boat man.



Renewable Cylinder Walls

Imagine the advantages of cylinders which are removable and renewable. A W-S-M engine can't wear out because every wearing surface can be renewed. The cylinders can be taken out without moving the engine from the bed, and pistons may be removed through either the top or the bottom.

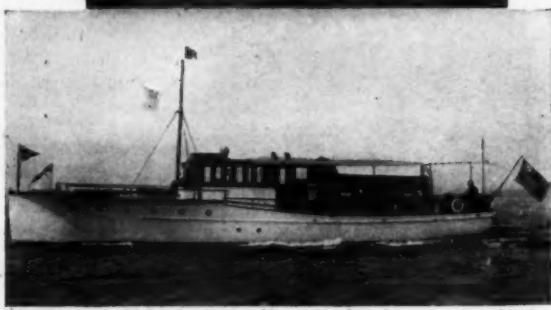
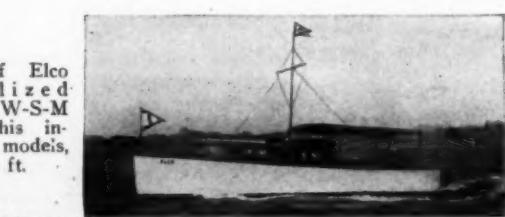
The W-S-M is an engine embodying the best features of standard marine practice, together with many new features. It is not a truck or tractor motor converted for marine use. In fact, when the Wellman-Seaver-Morgan Co. undertook to develop a high efficiency industrial and tractor engine during the war, they based their plans on prevailing marine designs and placed the development in the hands of marine engineers of national reputation.

W-S-M features which at first seem radical in conception have proved their merit in actual service. The result is an engine easier to operate, more economical in fuel consumption, longer lasting, and less expensive to maintain.

Quantity production of these engines in a finely equipped plant has made it possible to offer an engine with the finest materials and equipment, and the highest standards of workmanship, at a price much lower than any other marine engine of its quality and power.



A group of Elco Standard Cruisers, all W-S-M powered. This includes five models, from 30 to 56 ft.



W-S-M MARINE ENGINES



W-S-M Marine Engines are furnished in two models, both with four cylinders, $4\frac{3}{4}$ " bore by 6" stroke. The medium duty model weighs 1,450 lbs. and develops 28 to 46 h. p. at 600 to 950 r. p. m. The high speed weighs 1,350 lbs. and develops 48 to 60 h. p. at 1,000 to 1,400 r. p. m. These ratings are approximately 10% less than the actual power on dynamometer test.

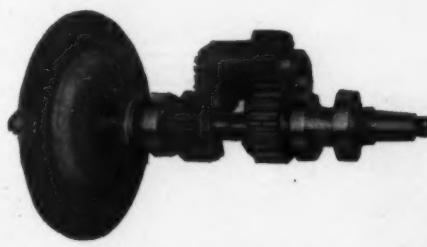
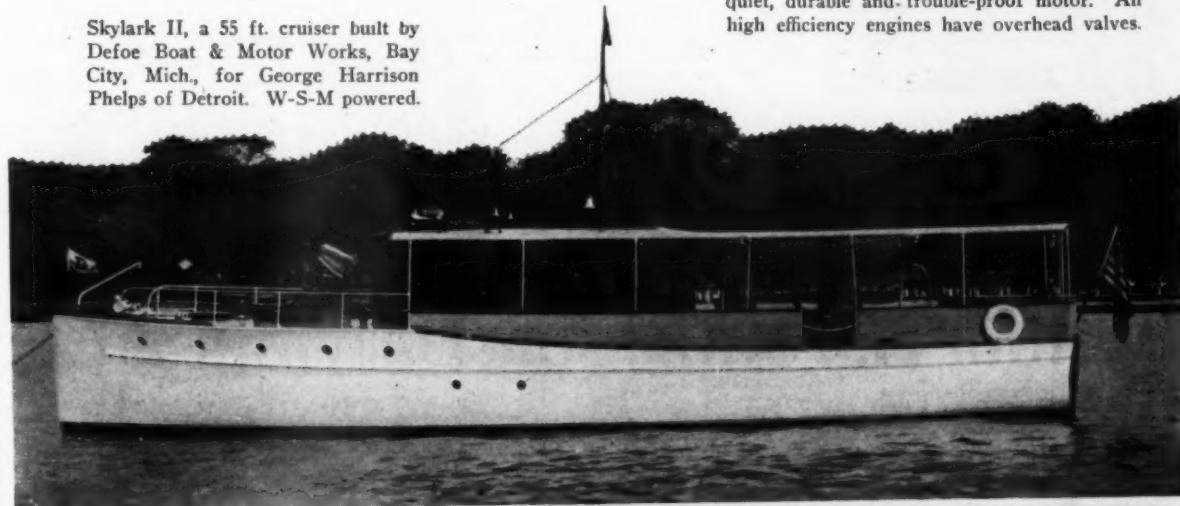
The price of both models is \$1,350 complete, including starting-lighting unit and storage battery, magneto and all other engine equipment, f. o. b. factory, Akron, Ohio.

These engines are built to run continuously under full load. That is a simple statement, but it implies perfect cooling, perfect lubrication, and perfect balance in the weights and strength of all working parts.

Furthermore **W-S-M** Marine Engines will last indefinitely because every moving part and every wearing surface is renewable. The **W-S-M** owner will not have to replace his engine because it is worn out or obsolete in design—the design is so advanced it will not be out of date for many years.

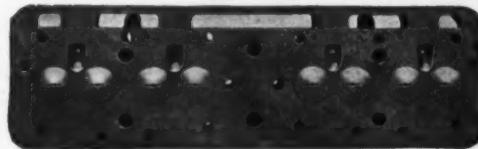
Of course the final test of an engine is in the service it gives. In this respect, the dependability of **W-S-M** engines is thoroughly proved by hundreds of satisfactory installations in fine boats throughout the world. All the leading builders and architects have used these engines.

Skylark II, a 55 ft. cruiser built by Defoe Boat & Motor Works, Bay City, Mich., for George Harrison Phelps of Detroit. **W-S-M** powered.



Sliding Reverse Gear

The only marine reverse that gives a positive neutral position without drag. It operates like an automobile gear shift. Reverse speed 80% of forward speed. The quietest, simplest, most durable and most easily operated reverse gear ever used in a boat.



The entire overhead valve mechanism is carried in this water-cooled detachable cylinder head. Clearances are easily adjusted and the design of the rocker arms makes a particularly quiet, durable and trouble-proof motor. All high efficiency engines have overhead valves.



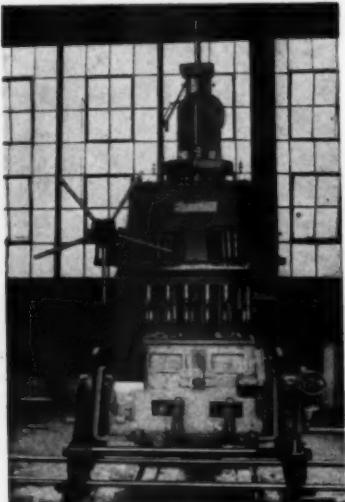
W-S-M MARINE ENGINES



A visit to the Wellman-Seaver-Morgan engine plant would quickly show you how and why the W-S-M Marine Engine is priced so much lower than any other engine that compares with it in quality of design, workmanship and materials.



View of assembly aisles showing arrangement of tracks for progressive assembly of W-S-M Marine Engines.



One of a battery of multiple spindle drills boring twenty holes in the top of a crankcase at one operation.

Let us send you the complete catalog of W-S-M Marine Engines which describes and illustrates in detail their many unique features. The catalog is sent free on request.

Marine Engine Dealers and Boat Builders

We have several valuable territories open for agencies and sub-agencies for W-S-M Marine Engines. This is an unusual opportunity which will be recognized by those who have the proper selling and service facilities. It is not only an exceptional marine engine but it also has an exceptionally strong organization behind it. Write or wire for details today.



These large milling machines are used to machine several crankcases in one operation.



A Gisholt Lathe which produces cylinder sleeves in large quantities, all machined to microscopic accuracy.

Wilbur H. Young, Sole Distributor (U. S. & Foreign)

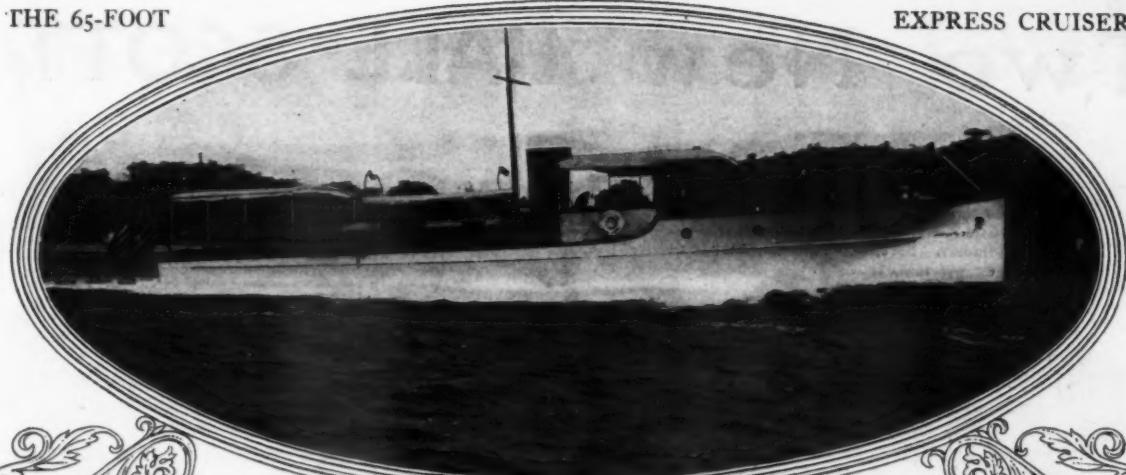
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THE 65-FOOT

EXPRESS CRUISER



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"Built up to a Standard—not down to a Price"

Whatever the requirements and preferences of the individual, there is a Great Lakes Cruiser which is admirably suited. Accommodations, speed, seaworthiness, beauty, sturdy construction, and elegance are all equally combined without over-emphasis of one to the sacrifice of another.

See the 54-footer and the sensational, new Great Lakes 26-foot Runabout at the Motor Boat Show

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MILWAUKEE, WISCONSIN**

Our custom-built department is at your disposal to serve individual requirements.

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26-foot Economy Runabout
26-foot Great Lakes Packard
Runabout
30-foot High Speed Runabout
31-foot Twin Screw Fishing
Cruiser
54-foot Twin Screw Express
Cruiser

Send for our beautiful new 54 and .65-foot Express Cruiser Catalog "A."

45-Foot Express Cruiser

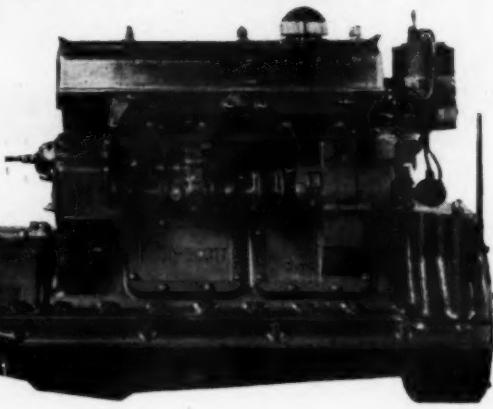
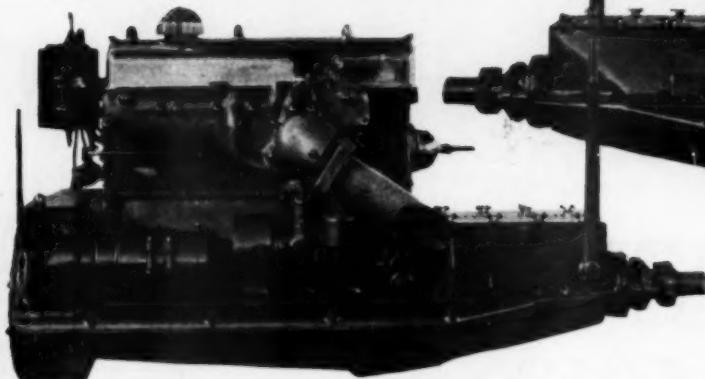
54-Foot Express Cruiser

45-Foot Deck House Cruiser

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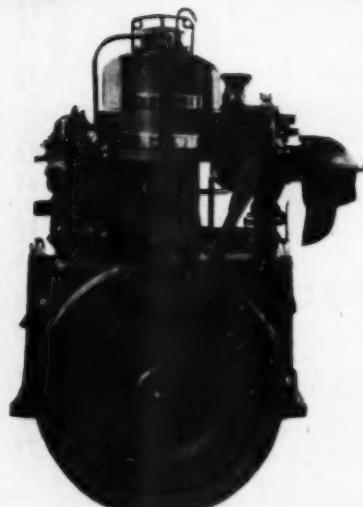
Two New HALL-SCOTT

The New Hall-Scott H. S. M. 4
50-70 H.P. at 1200 to 1800 R.P.M.
Four Cylinders. Bore, 4½"; Stroke, 5½"
Weight, 1300 lbs.



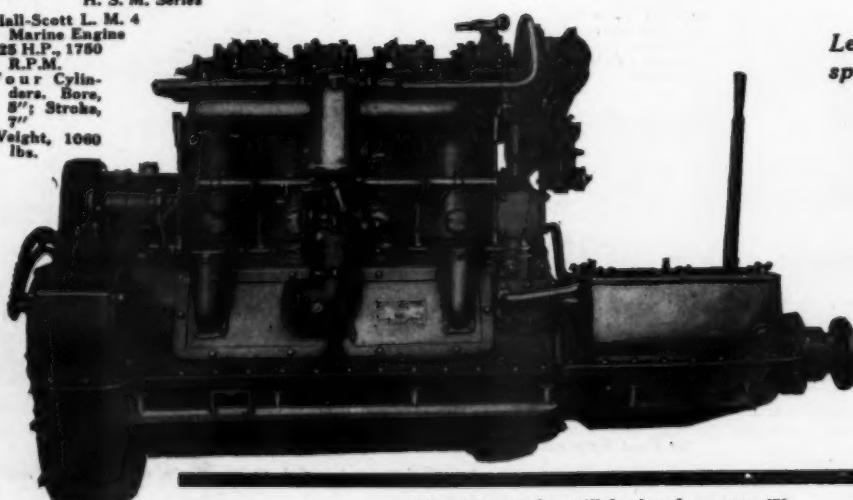
H. S. M. Series

Full pressure lubrication.
Overhead Valve action—Silent chain drive.
Governor an integral part of camshaft; prevents injurious racing of engine in a sea.
Valves extra large, intakes larger than exhaust.



H. S. M. Series

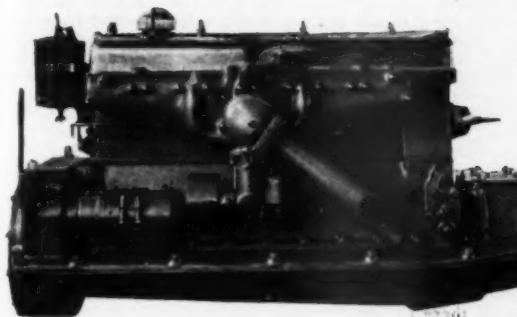
Hall-Scott L. M. 4
Marine Engine
125 H.P., 1750
R.P.M.
Four Cylinders. Bore,
5"; Stroke,
7"; Weight,
1060
lbs.



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specifications together with
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**HALL-SCOTT
MOTOR CAR
COMPANY**

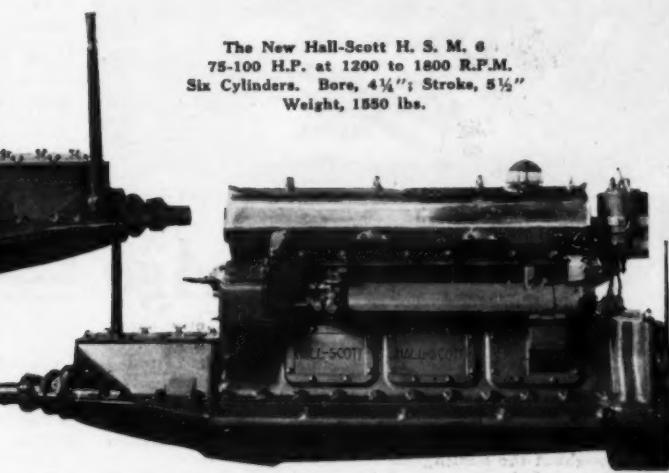
Marine Engines for 1924



H. S. M. Series

Regular Equipment includes Electric Starter and Generator, Storage Battery, Ammeter, Switch, Wiring, Spark Plugs, Carburetor, Gasoline Strainer, Water Intake Scoop, Oil Pressure Gauge, Set of Tools and Oil Cans.

Guaranteed free from defects for one year.



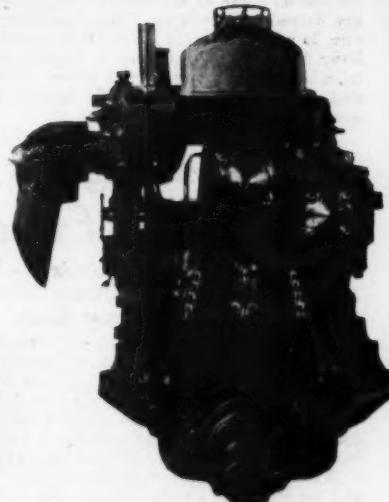
The New Hall-Scott H. S. M. 6
75-100 H.P. at 1200 to 1800 R.P.M.
Six Cylinders. Bore, 4 1/4"; Stroke, 5 1/2"
Weight, 1550 lbs.

ELECTRIC drive installation with pairs or double pairs of H. S. M. Sixes are recommended for the larger motor yachts. These will be found compact, quiet and vibrationless. Of course, such sturdy motors will be found ideal for ferry launches that run all day and every day, for cabin cruisers, ship tenders and all motor boats whose owners desire an exceptionally dependable power plant.

The long experience in continuous full load power production that the Hall-Scott Company has had with its former aviation and marine motors assures the success of the H. S. M. motors in marine work. Their dependability has proven equal to that of the smaller Diesel motors. The enormous difference in weight per B.H.P. makes them actually more economical than the Diesel for all wooden boats.

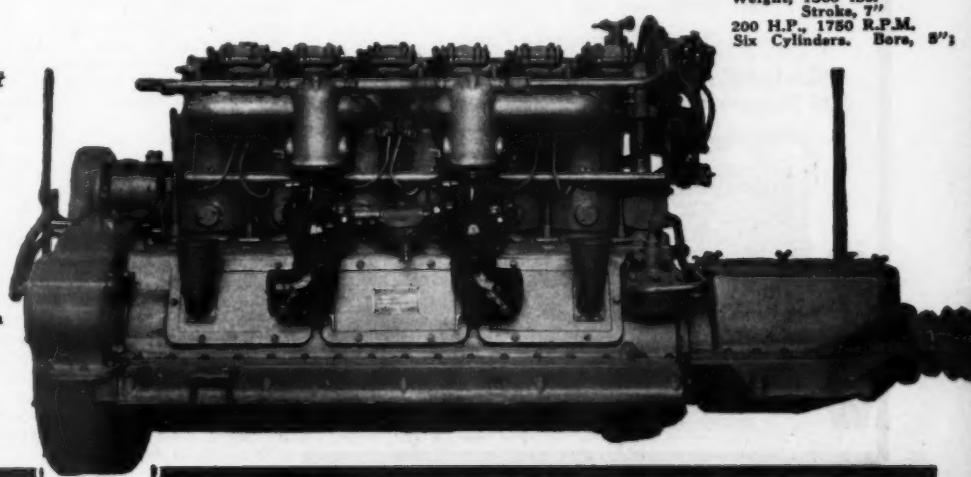
Accessibility Simplifies Maintenance

Special care in designing has produced a motor of remarkable accessibility. If complete overhauling should be necessary, the entire engine can be lifted out of the boat, leaving the lower crankcase firmly attached to the engine bed, thus eliminating the necessity for realignment. For ordinary upkeep attention, the whole cylinder head can be removed without disturbing even the manifolds. This makes valve grinding very easy. For valve mechanism adjustment it is merely necessary to remove the valve cover. Connecting rod bearings can be taken up thru the large hand holes, and if required, the entire cylinder block can be removed as a unit.



H. S. M. Series

Hall-Scott L. M. 6 Marine Engine
Weight, 1360 lbs.
Stroke, 7"
200 H.P., 1750 R.P.M.
Six Cylinders. Bore, 8"



See these new motors at
the Motor Boat Show

Eastern Branch

887 Niagara Street
Buffalo, N. Y.

Factory: Berkeley, California



Twenty Years Ago

NIAGARAS were good engines then, and ever since, during twenty eventful years, they have set a standard of quality. Back in the days when the old salts of today were young at the boating game we established a policy of building good, honest, reliable marine engines, and that same policy consistently followed for a generation has put the Niagara reputation on a firm foundation throughout the boating world.

Some of the finest and fastest pleasure boats afloat, as well as some of the hardest working commercial craft, are driven by Niagaras. The first Niagara, built 20 years ago, is still in service. And thousands of other Niagaras have followed it, reaching to twenty-two different countries in different parts of the globe. There must be quality and precision, and stability, behind such a consistent success.

Superior Engines for All Types of Boats

Cruisers — Runabouts — Launches
Tugs — Fishing Boats
Passenger Boats

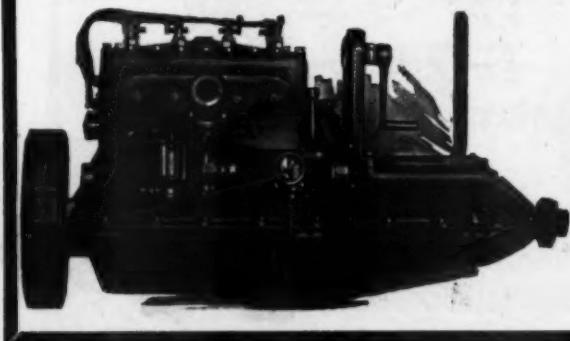
When a man goes to sea in a boat, he wants to be absolutely certain that his power plant can be depended upon to take him out and bring him back again. Leave the doubtful engines—the auto and aero engines and other uncertainties—to the fellow who doesn't know or doesn't care; your family wants you back safe even if you like to take a gambling chance yourself.

We realize our responsibility as marine engine builders and we put into every Niagara the honesty of construction that is bound to show up in service.

Write today for free catalog. Be sure to tell us the size of your boat and the horsepower you are figuring on.

See the Opposite Page

NIAGARA MOTORS CORPORATION
206 Niagara Blvd. Dunkirk, N. Y.



Superior Magnets

Among the several methods of securing the proper ignition of the combustible charge in a gas engine cylinder, the magneto system is perhaps the most favored. The Eisemann Magneto Corporation of Brooklyn, for many years specialists in high grade ignition equipment, are turning out a magneto of the highest quality, particularly adapted for marine service. Actual tests have shown that great dependability and complete satisfaction are secured from high tension magneto ignition, particularly when used in the very unfavorable conditions on board motor boats. The continual dampness and moisture are very trying on all ignition equipment, and the high tension magneto suffer the least under this handicap.

On Boat Insurance

The subject of proper coverage for all marine risks is one of great importance to the yacht owner. Specialists in marine insurance will be in attendance at the booths of MoToR BOATING and also of C. P. & E. H. Tucker, New York Insurance Brokers. They are prepared to furnish expert advice on this complex subject, and yacht and boat owners are urged to avail themselves of the privileges afforded by the presence of these experts.

A New Exhibitor

One of the newcomers among the exhibitors at the 1924 Motor Boat Show, the Sound Machine Shop, Inc., of Mamaroneck, N. Y., will exhibit a sturdy 16-foot launch which was successfully introduced in the standardized boat class last spring.

This boat, which has a dependable power plant in its Barker size C 2-cycle motor, has a seaworthiness that makes it a desirable craft for family use or for picnicking or fishing. It is 16 feet 3 inches long over all, six feet beam, draws 19 inches and has 2 feet 6 inches freeboard. It is built with oak frames, combing and upper streak and $\frac{1}{2}$ -inch cedar planked keel. A 13-gallon bow tank under the forward deck has ample fuel capacity for about 20 hours' running.

One or two other boats will be exhibited by the same concern, but it is expected that this one will attract most attention among the show patrons who are interested in a moderate priced, seaworthy launch for general use.

An Economy Measure

For the yachtsman who uses a marine engine which is extravagant in the consumption of fuel, there is made a carburetor which effects a considerable economy without a falling off in power. The Ensign Carburetor Company of Chicago have designed a vaporizing device which they claim will deliver more power on less fuel consumed, simply because the design of the device is such as to produce a dry gas which burns completely. The cost of this fixture can be saved out of the fuel economy which it produces, so that it can be said to be paying for itself while it is in service. This carburetor is the one which is fitted to the powerful marine engines made by the Stearns Motor Manufacturing Company which are noted for the fact that they produce a very high horse-power rating per cubic inch of piston displacement.

Wm. E. Gibb Joins Van Blerck

Announcement is made by the Joseph Van Blerck Engine Corporation of Plainfield, N. J., that the position of Sales Manager with that company will be filled by the genial Billy Gibb, more precisely known as William E. Gibb. Mr. Gibb was previously Sales Manager for the Sea Sled Company, and has had ample experience in the marketing and selling of boats and engines of various types. His connection with the Van Blerck Company will undoubtedly be of great benefit to this concern.

An Electric Pump

A compact little electric pump suitable for all pumping purposes on yachts and larger boats, is the Erico electric bilge pump, supplied by the Hubbard H. Erickson Company, Chicago. This little machine operating directly with an electric motor is supplied in 24, 32, or 110 volts. The current consumption is small, ranging from 1 to 4 amperes according to the voltage. The body of the pump is made entirely of bronze so that it is impervious to rusting or corrosion. It is made in several sizes. The smaller will handle nine gallons per minute, while the larger will handle twelve gallons. Another specialty made by this same company is the Universal shaft log which is a good device for permitting the propeller shaft to pass through the hull in a leak-proof manner and at the same time permit of readjustment whenever necessary with a minimum of effort.

An Adjustable Propeller Strut

One of the most useful specialities developed for use of the boat builder is an adjustable propeller strut being marketed by the G. B. Carpenter Company of Chicago. This unique fitting is arranged to be adjustable to any reasonable length by cutting out a sufficient length of an intermediate portion to give the required dimension. When the bearing on this fitting becomes worn it may be replaced and fitted to the same hanger at small cost, rather than the necessity for replacing the entire strut. Also in cases where the shaft size is changed, a larger or smaller bearing can be fitted quickly. This fitting is constructed of high grade bronze throughout, and is highly polished and of such a section as to reduce resistance to a minimum. In addition to this fitting the exhibit of the G. B. Carpenter Company will display their new pattern electric running lights as well as the combination electric post light for class one boats. Many other interesting specialities will also be on display for the instruction of the boat owner.

Showing Electric Tools

The Chas. D. Durkee & Co., Inc., Exhibit will be found at Booths Nos. 103, 105, and 106 on the Mezzanine Floor. They will show an attractive line of power and sail boat equipment, including steerers, portlights, binnacle bells, running lights (both oil and electric), compasses, bronze and lignum vite yacht blocks, mast track and slides, wicker furniture, alcohol stoves, ranges, and searchlights. They have added a new line and will show and demonstrate electric drills and screw drivers. No boat builder can afford to be without these. Every power yacht should have an electric drill on board.

Buffalo Engines Make Good

Not very long ago, when the new 14-30 h. p. unit power plant was developed by the Buffalo Gasoline Motor Company, there was some skepticism evidenced by critics who believed that the company was trying to put over a cheap engine. The evidence of a season's trial more than bears out the fondest hopes of the company, for this little engine has added to the reputation of the Buffalo family. Countless numbers of these engines have been installed in boats of all kinds and types, from cruiser and runabout to small fishing and work boats, and comments of the owners of these express the greatest satisfaction with the behavior of the engine. In addition to this particular machine, the range of Buffalo engines extends through the complete assortment up to the big six-cylinder size of 150 h. p. All these engines are particularly designed for heavy duty and reliability. They will be found in tug boats, ferry boats, and the general purpose work boats of all kinds, as well as in the heavier types of sea-going cruising boats.

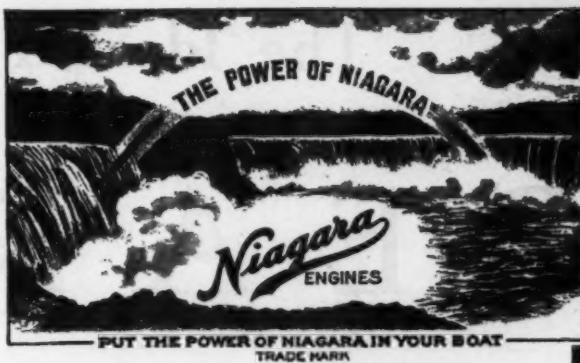
Government Surplus Stocks

A remarkable business has been developed by the E. J. Willis Company, in the recent months, in the merchandising of the large surplus stocks of U. S. Navy boating materials. Enormous quantities of small boat equipment and gear have remained in the government warehouses as the result of the recent unpleasantness, and Uncle Sam is disposing of these by degrees. The small boats shops of the Navy had ordered lamps, bells, buoys, compasses, rope, and hundreds of other items of boat equipment, all of which are now being sold at retail by the Willis Company. Special circulars have been published describing the many articles, and their cost is moderate. It is advisable for any readers of this magazine who are interested to send for a copy of this booklet. The address of the E. J. Willis Company is 85 Chambers street, New York, N. Y. The stocks of material which they have purchased are so large that they have been compelled to secure two extra buildings for storage purposes, in addition to their already large quarters. They are arranging to sell at a remarkably low price some wonderful Chelsea boat clocks, which are brand new and in the original cases. Opportunities of this nature do not come very often and visitors to the Motor Boat Show should be sure to examine the extensive line of samples which they will have on display.

True Screw Propellers

The theory of propeller design is very intricate, and there is some difference in opinion among designers as to the best type of propeller for the most recent results. The true screw design of propeller from which the Harthan wheels are made by the McFarland Foundry & Machine Company have stood the test of time and experience. These wheels, which are made of a special bronze composition, are very tough and strong, permitting the blade to be made very thin. The edges are finished down very sharp, which, combined with the high polish, reduces the power absorption to a minimum. The wheels are made in either two or three blades, and for either right or left hand rotation.

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PUT THE POWER OF NIAGARA IN YOUR BOAT
TRADE MARK

Niagaras of Today

First and foremost is the NIAGARA Special, our newest, smallest and most popular model. A high grade four cylinder four cycle engine with 2 1/2" bore and 4" stroke, it is a real marine job, designed and built from the ground up for boat use and for nothing else.

When you come to study the design of the NIAGARA Special you'll see the difference between a strictly marine engine and an assembly of miscellaneous auto motor parts. For instance, the built in reverse gear with integral rear starter, sight-feed pressure lubricating system, bronze rotary water pump, superheated intake manifold and covered valve mechanism. Such a motor looks good in any boat, and the NIAGARA Special is as good as it looks.

And then it has all the four cycle advantages such as easy starting, flexibility, reliability and fuel economy. You can't find a finer engine for a small boat.

Medium Duty—7 to 12 H. P.—600 to 1100 R. P. M.
High Speed—12 to 15 H. P.—1100 to 1800 R. P. M.
Ignition—Magneto, coil and timer, or Atwater-Kent.

and for Larger Boats

NIAGARA E-2, 12-4 h. p., 2 cyl. 4 cycle, for FISHING AND HEAVIER SMALL BOATS.

NIAGARA E-4, 20-30 h. p., 4 cyl. 4 cycle, for FISHING LIGHT CRUISERS AND SPEED RUNABOUTS.

NIAGARA D-4, 40-60 h. p., 4 cyl. 4 cycle, for COMMERCIAL BOATS, TUGS, ETC.

NIAGARA D-6, 60-120 h. p., 6 cyl. 4 cycle, for CABIN CRUISERS, MOTOR YACHTS, PASSENGER AND SERVICE BOATS.

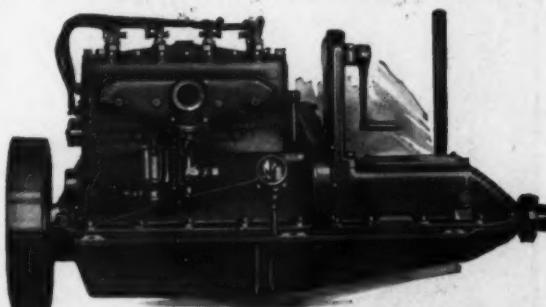
We want to help you select the right power equipment for your boat. Whether you finally decide on a Niagara or some other engine, we'll be glad to send you our latest catalog and prices, and will also write you personally about the recommendation of our engineers if you will give us the details of your boat, speed, service, etc.

*BOAT BUILDERS
ENGINE DEALERS*

You should have the Niagara catalog and prices on file. Write for these today—they're free—even though you now handle a competing line. We have a liberal agency proposition for builders and dealers in several valuable unallotted territories.

Write or wire today

NIAGARA MOTORS CORPORATION
206 Niagara Boulevard Dunkirk, New York



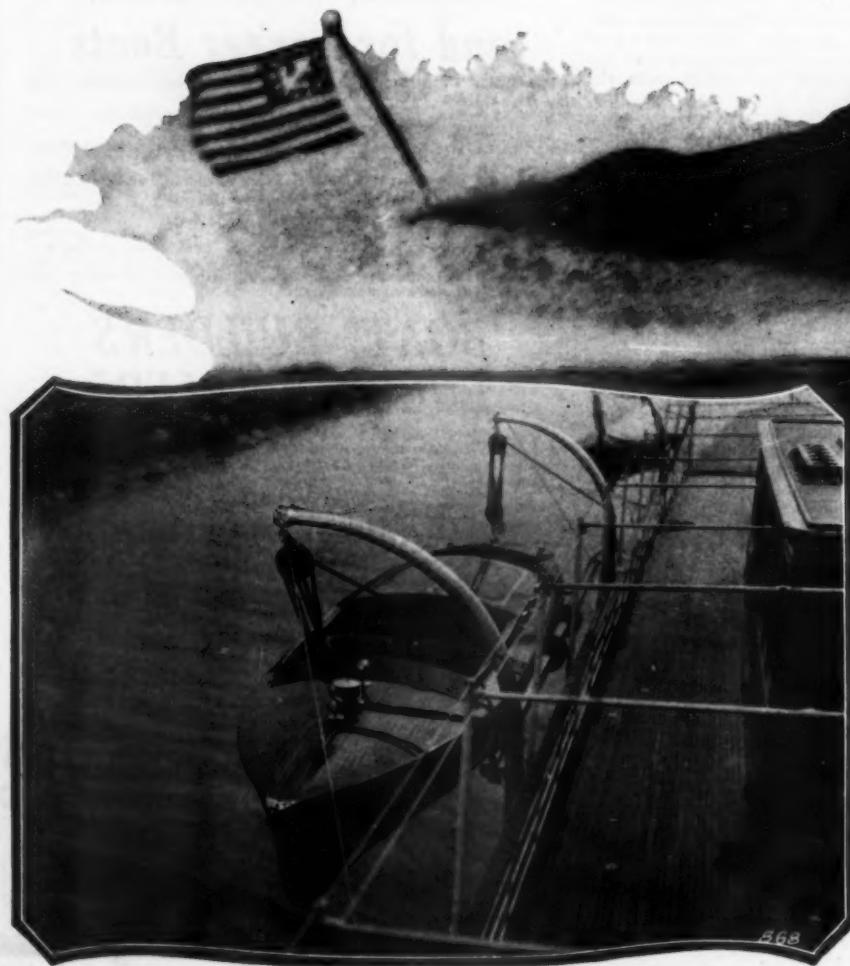
NIAGARA "Special" 9-15 h.p. Unit Power Plant

The Ideal Yacht Tender

The 1924 Belle Isle

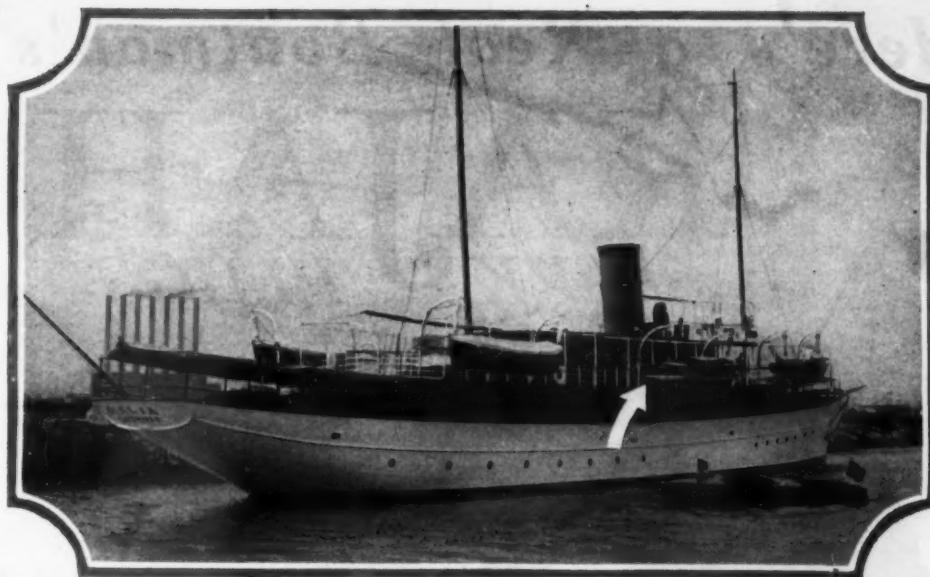
B E A R C A T

Beautifully finished, sturdily built, reliably powered and with every refinement in the way of equipment, the Bear Cat has become the Aristocrat of Runabouts. As yacht tenders they are rapidly replacing the slower, wetter type boats and are proving their worth on both salt and fresh water in constantly increasing numbers. With comfortable accommodations for eight passengers and equipped with a reliable 200 horse power motor, they develop a consistent speed of 40 miles per hour.

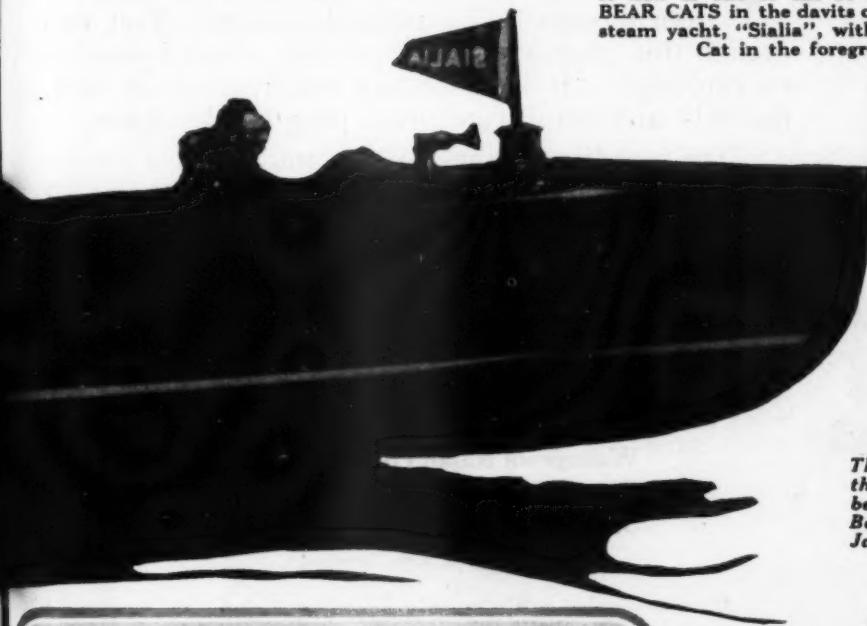


As the BEAR CAT can be throttled down to trolling speed when desired, it makes an excellent fishing boat for either Florida or Northern Waters.

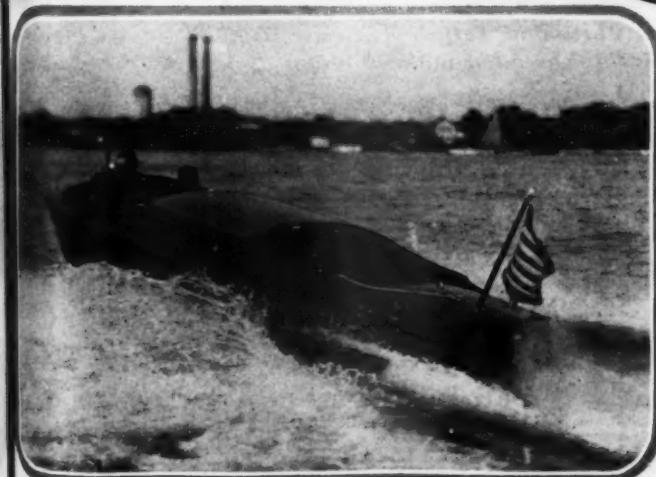
Demonstrations in Florida during the Winter Season.



A view of one of the 26 foot Belle Isle BEAR CATS in the davits of Henry Ford's steam yacht, "Sialia", with another Bear Cat in the foreground.



The first public display of the new 1924 Bear Cat will be at the National Motor Boat Show in New York, January 4th to 12th.



Write for illustrated literature and further details

BELLE ISLE BOAT AND ENGINE COMPANY

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RAJAH SPARK PLUGS

Waterproof Type



Waterproof
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Marine Distributors of Rajah Spark Plugs and Terminals

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Section
RAJAH
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Martha Ellen is
one of the stock
32-footers built
by Fellows &
Stewart, Wilm-
ington, Cal.
Kermath 35



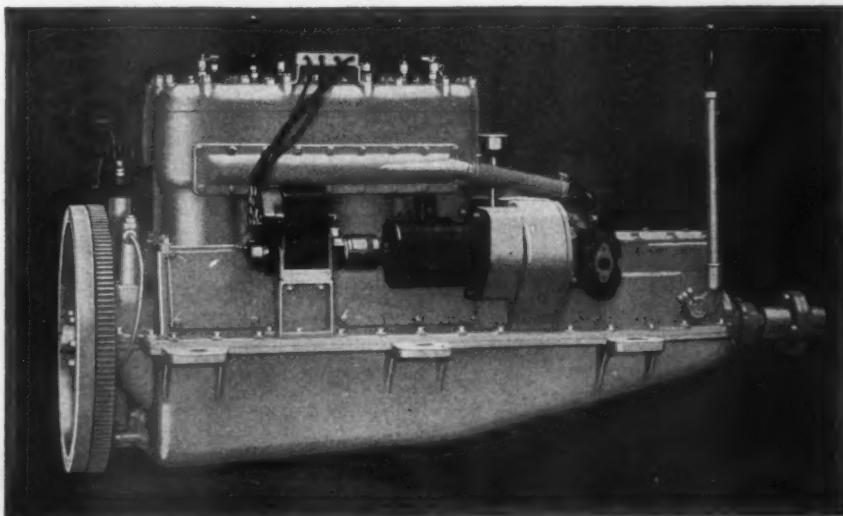
This 25' x 5' 6"
runabout is
driven 25 m.p.h.
by a Kermath
outboard.
Owner, B.
Letendre, Mon-
treal, Que. Builder,
Miles Jeffery,
Lachine, Que.

At the End of the
RAINBOW
You'll Find a

KERMATH

"A Kermath Always Runs"

It's the "Pot of Gold" You're Looking for—Marine Engine Satisfaction



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The specialized 38 ft. shallow draft day cruiser produced by the Gordon Boat Building Co. Brooklyn, N.Y. With only 14" draft, this boat makes 20 miles with a Kermath 50

A Hacker design 21 ft. runabout owned by Mr. James Alberta, Orange, Texas. She travels over 20 miles per hour with a Kermath 35



Areck is one of the Racine Boat Company's standard 25 ft. runabouts, owned by Mr. A. G. Reck, Columbus, Ohio



Tanya, a 65 ft. Herreshoff sloop with the Kermath 35. Owned by Mr. N. B. Kelly, general secretary of the Philadelphia Chamber of Commerce



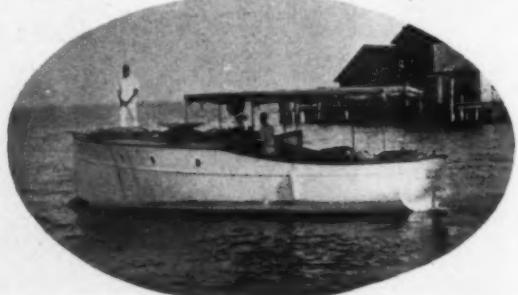
The 40' x 8' pilot boat "Comet," used at the Grand Prix, A Kermath 35 installed by Matt Weeks, Punta Gorda, Fla., drives "Comet" 16 miles an hour

KERMATH

We are mighty proud of the new Kermaths 35 and 50, and what they have accomplished in their first year on the market. It is a real pleasure to build a successful product.

These Kermaths have been chosen by experienced yachtsmen and boat builders all over the country. Of course we had the advantage of the excellent reputation already established by the smaller Kermaths up to 25 H.P. That insured ready acceptance of the new Kermaths when we introduced them last spring. And now these models can travel on their own reputation, for a full season of service has proved them to be all that we promised—and more.

This is "Ohbee," built for Mr. B. M. Oberdorfer of B. M. O. Inc. by International Shipbuilding, Nyack, N.Y.
Kermath 35





A stock 24 ft. speed runabout by A. G. Liggett & Son Co., Wyandotte, Mich. 24 miles per hour with Kermath 50

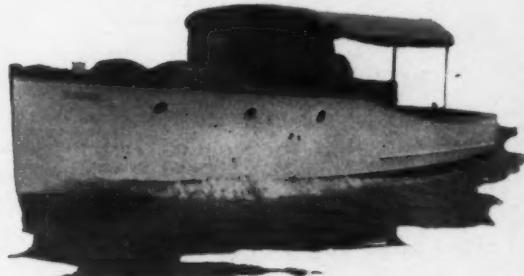


Greyhound, a 15 mile cruiser owned by Vice-Commodore Preston of the Lake Champlain Yacht Club at Burlington, Vt. Built by Henry M. Proctor, Burlington. 30' x 8' 6" x 2' 3"

The 45' Auxiliary Yawl *Katrina*, owned by Duncan Ellsworth of New York. Kermath 35



Sonny is 31' x 8' 6" x 18". extra heavy construction, speed 12 miles with a Kermath 35. Built by W. A. Kieserleiter, Miami, Florida, for Mr. W. P. Adams of Miami Beach



35 & 50

Notice that most all the prominent builders of stock boats between 25 and 40 feet have made these Kermaths standard equipment. Notice also that they are being used in runabouts, cruisers, auxiliaries and commercial boats, requiring dependability as well as steady power at medium speed and consistent performance at high revolutions.

The bore and stroke of both models are 4 3/8" x 5 1/2".

Kermath 35
600 to 1000 R.P.M.
20 to 40 H.P.
Weight, 950 pounds
\$775 to \$950

Kermath 50
1000 to 1500 R.P.M.
40 to 55 H.P.
Weight, 700 pounds
\$875 to \$1050

KERMATH MFG. CO.

5879 Commonwealth Avenue

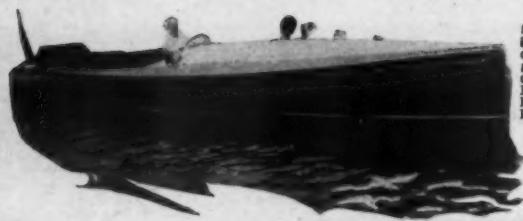
Detroit, Mich.



The 36 ft. runabout "Snooter," owned by Mr. W. H. Hackett of the United States Rubber Company, New York



The 38' Kyle "Standard" owned by Mr. Wallace E. J. Collins, Brooklyn, N.Y.



Simplex, a 40' x 8' 6" runabout which carries 26 passengers, is owned and operated by Barnes Brothers of Lake Hopatcong, N. J. The Kermath 35 gives it speed of 17 miles per hour.



A remarkable shallow draft boat just built by Fellows & Stewart, Wilmington, Cal., to carry a 1,000 lb. load upstream against a 12-mile current. Maximum speed 19 miles with Kermath 50.

Draft 11 to 14 inches depending on load and speed.



KERMATH

We think these pictures prove that we have kept faith with our Kermath friends all over the country. And with each boat picture that reaches us in the mail, along comes a letter telling of the genuine satisfaction the owner has received.

While all the boats in these pages are equipped with the new Kermaths 35 and 50, don't imagine for a minute that the smaller Kermaths from 3 to 25 H. P. have been forgotten or have lost one whit of their popularity. As a matter of fact the orders for these from boat builders and owners keep our plant running to capacity winter and summer.

If you are not already well acquainted with all the Kermath engines and their prices, let us send you a catalog and tell you the nearest Kermath dealer.

Write today

KERMATH MFG. CO.
5879 Commonwealth Ave. Detroit, Mich.



The Matthews Boat Works, Daytona, Fla., are producing this standardized 32' x 9' cruiser, powered with a Kermath 35.

This 16 miles 30-footer built by G. T. Bucklin & Sons, Ft. Pierce, Fla., for Mr. Fred G. Hubbard of New York. Kermath 35.



The standardized 28 ft. cruiser built by Liggett of Wyandotte, Mich. Kermath 35.



Above is "Mary Alice," a 23 ft. runabout built by Bryant Boat Works, Wyandotte, Mich., for F. L. Schwarz, Jr., of Marine City. The Kermath 50 gives her 27 miles. Formerly powered with a Kermath 30, giving 18 miles.



Struan, winner of the Bals Trophy on Muskoka Lakes, Canada. A 28-footer which makes 26 miles with a Kermath 50.

V
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Announcing The CAILLE Liberty Twin



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Tanada
50

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The Motor No Other Dares To Follow!

FOUR years ago when the single-cylinder Caille Liberty Motor was placed on the market, we challenged any rowboat motor, regardless of type or price, to follow it through weeds, shallows, and over hidden obstructions. That challenge has never been accepted and still stands. Now, after proving the correctness of the direct-drive principle and Liberty design over a period of four years, we announce the

CAILLE LIBERTY
DETROIT
L TWIN

A rowboat motor that positively has no equal—combines all the advantages of the old vertical type motor and has many exclusive features not found in any other motor ever built. Will drive your boat through thick weeds, through water so shallow a boat

will scarcely float and over hidden obstructions that would wreck any old style motor of the so-called "tilting" type. The drive is direct from motor to propeller—no loss of power through bevel gears—no gears to wear and "grind." The LIBERTY drives your boat equally well in deep and open waters with the added advantage of driving a boat any place that the boat will float—right up to the beach or shore line without the necessity of removing the motor.

Free Tilting

The LIBERTY TWIN is so pivoted and evenly balanced that the instant the protecting skeg strikes an obstruction the propeller automatically rises over it. The propeller and shaft is free to tilt either sideways or upwards and this tilting is not counteracted by the forward thrust of the propeller wheel. Tests prove that other so-called "tilting" motors when running require a blow of sixty pounds to make the propeller rise over any object. The forward thrust of the propeller wheel on the old style type of motor must first be overcome before the motor can tilt.

Has Twin Cylinders

The power impulse of one cylinder is balanced by that of the other, both cylinders fire at the same time, resulting in a motor without vibration. Pistons are made of the famous Dow metal, light, strong and cannot score a cylinder. Crankshaft of forged, chrome nickel steel, heat treated to give great tensile strength and a hard ever-wearing bearing surface. All bearings are of phosphor bronze, liberal in size, assuring long life.

Bosch Ignition

This is the well-known, and recognized as the best ignition system for gas driven motors. The

magneto is of the standard type, mounted on a special cradle permitting motor to be run at slow trolling or fast speeds without any variation in the intensity of the spark. This feature is the result of the combined efforts of Bosch and Caille engineers. Bosch Magneto entitles the user to service from any of the 2,100 Bosch service stations throughout America. Not necessary to send to factory for service as with the flywheel magneto.

Zenith Carburetor

A specially designed model for the Caille Liberty Twin operates automatically at all speeds without any adjustment whatever.

Light Weight

The Caille Liberty Twin is light enough to be easily carried and handled. The handle on top of gasoline tank is provided for this purpose. The propeller shaft or "tail piece" telescopes to a convenient length for carrying.

Get Complete Details

Our attractive literature will be sent to any address on request. Also name of nearest dealer. We have an interesting proposition for establishing dealers in open territory. Write us.

The Caille Perfection Motor Co.
6214 2nd Boulevard

Detroit, Michigan

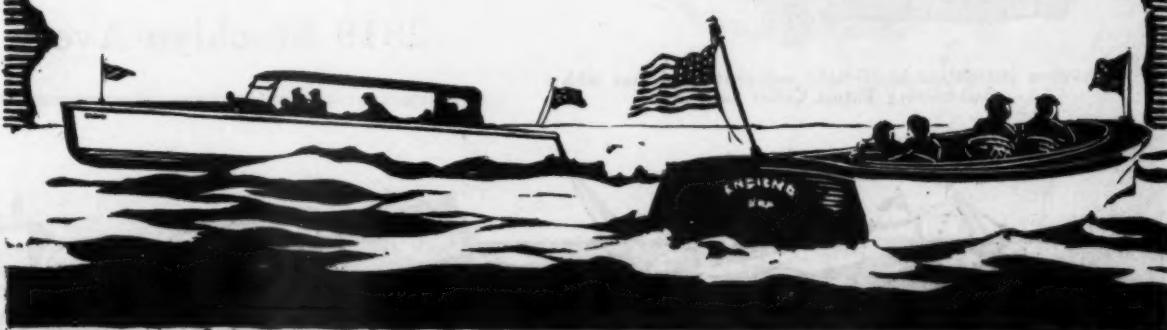
CAILLE
ROWBOAT MOTORS

STANDARD ENCLOSED REVERSE GEARS



"All the Name Implies"

STANDARD GEAR COMPANY
2819 Brooklyn Ave. Detroit, Mich.



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STANDARD



Patented Nov. 27, 1923

Compare this multi-cone type with any other clutch you have ever seen. Notice the great amount of clutch surface. The large cones cannot buckle or warp. The toggle mechanism is contained within the inner cone near the shaft, in the space not so efficient for clutch surface. All the friction surface is near the outer diameter where the leverage and holding power is greater.



Showing installation in oil-tight and dust-proof case with Ball-bearing Thrust Collar built in

MULTI-CONE

PATENTS covering the November 27, 1923, and accepted principles in patented a clutch that takes completely, there is no drag

The mechanism of most but if you are an expert you'll the Multi-Cone. Engineers tages of the cone clutch. stretch under pressure. The fit by lapping themselves more

It is no longer necessary to lever when pushing in the clutch slipping; a small child Multi-Cone. All the clutch diameter, the point of greatest power and easy engagement.

The Standard Multi-Cone oil.

Send for 1924 Catalog

STANDARD
2819 Brooklyn Ave.



Advertising Index will be found on page 276

REVERSE GEAR

CLUTCH

Multi-Cone Clutch were granted. Without departing from proven gearing we have perfected and hold smoothly and disengages so in the neutral position.

gears look alike to the initiated, appreciate the superior design of have long recognized the advantages. Cones cannot buckle, warp or more they are used the better they perfectly into each other.

use great pressure on a hand clutch, in order to prevent the can engage and disengage the surfaces are at the point of largest leverage, giving great holding

is entirely enclosed and runs in

and Price List

GEAR CO.

Detroit, Michigan



Patented Nov. 27, 1923

Ease of adjustment is another big feature of the Standard Multi-Cone Clutch. You simply insert a screw driver back of the locking spring. Turn toggles and let the spring snap into the next notch. This simple adjustment is easily accomplished through the hand hole cover of the case in one minute.

Prices
\$40 up

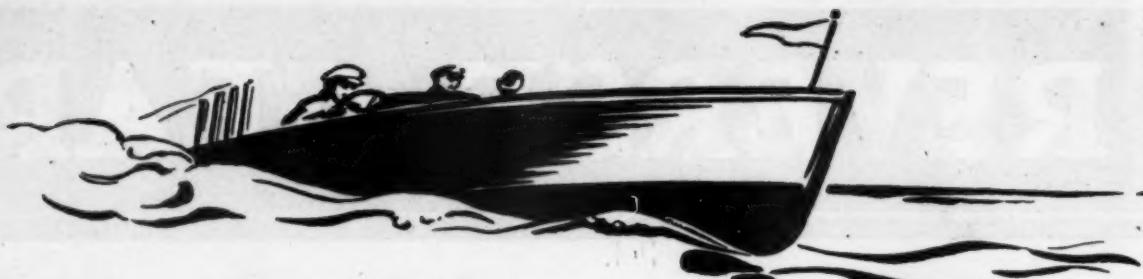
*Complete, with
Ball-bearing
Thrust Collar*



*Completely assembled—it
runs in oil*



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Throwing Money in the Water

would be no more foolish or reckless than throwing oil and grease about your boat. At least the one does not entail the dangerous fire hazard and reckless disregard of life that the other does.

Buy a

Standard (^{enclosed} _{type}) Reverse Gear

and keep your boat clean and free from oil and this unnecessary fire hazard.

Prices \$40 up

Send for Prices and Specifications

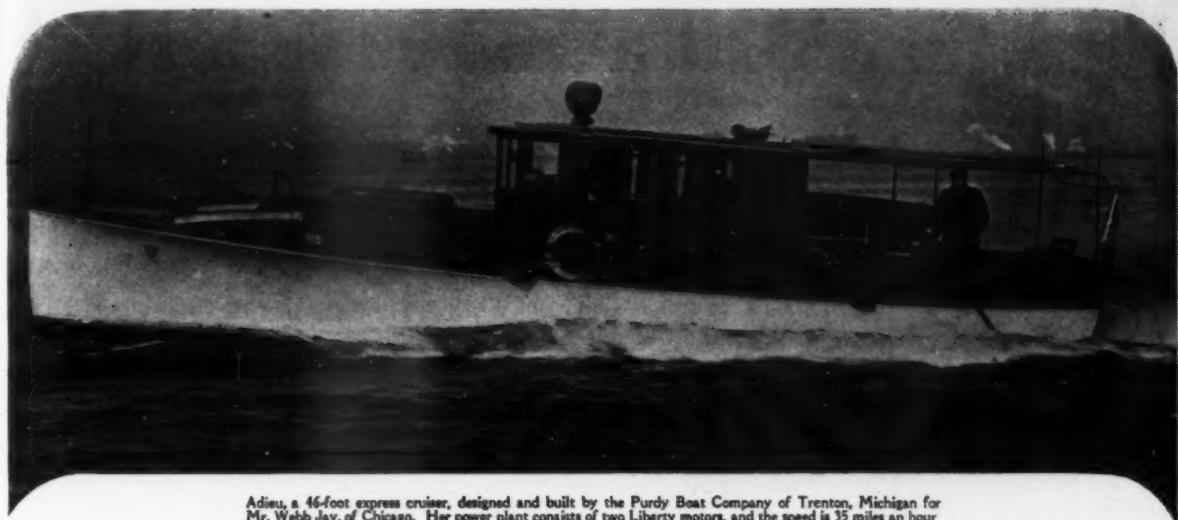
STANDARD GEAR COMPANY

2819 Brooklyn Ave.

Detroit

Michigan





Adieu, a 46-foot express cruiser, designed and built by the Purdy Boat Company of Trenton, Michigan for Mr. Webb Jay, of Chicago. Her power plant consists of two Liberty motors, and the speed is 35 miles an hour.

Purdy Built Express Cruisers Standard of the World

Round-Bilge, Seaworthy, Dry and Comfortable Cruising Craft which are a Pleasure to ride on at Speeds, up to 35 Miles an Hour

Ask the owners of any of the fast express cruisers we have built during the past five years as to the behavior of the Purdy designed Round-Bilge Express Cruisers, under unfavorable sea conditions, as compared with the V-bottom type, and you will be convinced of the superiority of our boats under every condition of fast or slow running.

Purdy Round-Bilge boats have all the advantages of the V-bottom type of underbody, with none of the disadvantages.

DRY FAST COMFORTABLE

Easily and Economically Driven at All Speeds — No Pounding or Shocks Either in a Head or Following Sea, with Little or No Roll in a Beam Sea.

Adieu, recently completed for Webb Jay, of Chicago, and Shadow H for Carl G. Fisher, of New York and Miami Beach, have finished their maiden voyages from Detroit to Miami, a distance of over 2,000 miles—made easily in two weeks.

We are ready to submit estimates on all types and sizes of craft for Spring Delivery

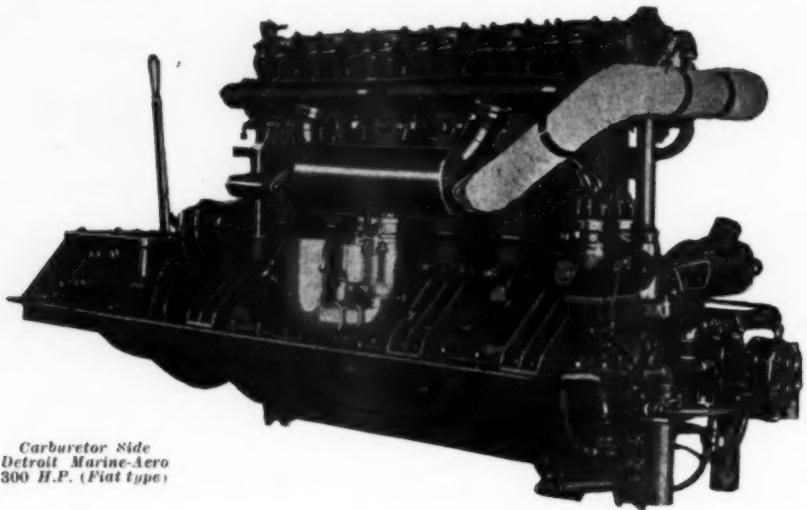
PURDY BOAT COMPANY, TRENTON, MICHIGAN

Shadow H, Mr. Carl G. Fisher's new express cruiser powered with two 6-cylinder Detroit Fiat motors speed 31 miles an hour. Boat designed and built by the Purdy Boat Company.



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Less than \$10 a H. P. for a High



Carburetor Side
Detroit Marine-Aero
300 H.P. (Fiat type)



This 26 ft. Skiff, built by the Red Bank Yacht Works for Lewis de B. Moore, Vice-President of Tiffany & Co., does 40 miles an hour with our 300 H.P. (Fiat type) engine.



Countess, the famous Hand V-bottom express cruiser, has recently been repowered with the Fiat type, and now makes 35 miles per hour. Owned by Henry P. Scott, President, Wilmington Trust Company, Wilmington, Del.

The celebrated "Florida Play Boat," recently introduced by Consolidated Shipbuilding Corporation. Speed up to 30 miles per hour. Among the well-known men who have already placed orders for these boats, Fiat powered, are:

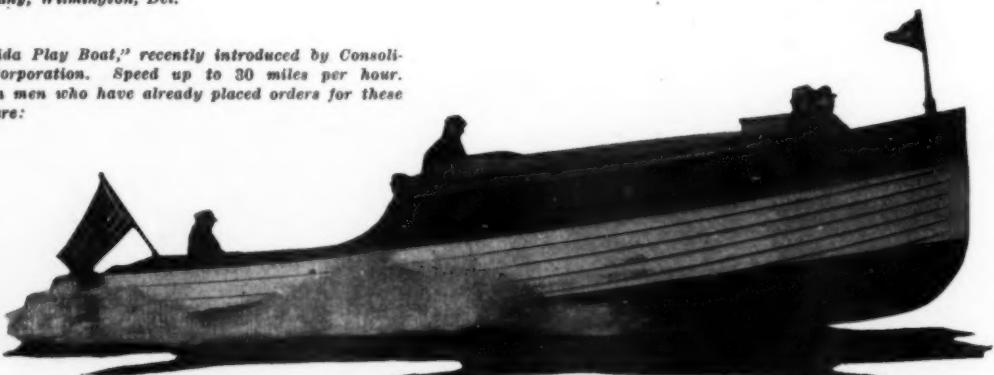
E. F. Hutton
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J. S. Phillips
R. F. Howe
F. C. King
Pierre Barbe
C. E. F. McCann

THE 300 H.P. Detroit Marine-Aero Engine (Fiat type) has firmly established its reputation as a thoroughly dependable marine power plant. It is the choice of experienced yachtsmen who can afford the best. It is also used by the leading boat builders, including Consolidated, Great Lakes, Gar Wood, Belle Isle, Hacker, Chris Smith, Purdy, Matthews, Red Bank and others who build fine boats.

This engine has been developed by competent marine engineers and makes an excellent power plant for any fast runabout or cruiser hull from 26 ft. to 65 ft. in length.

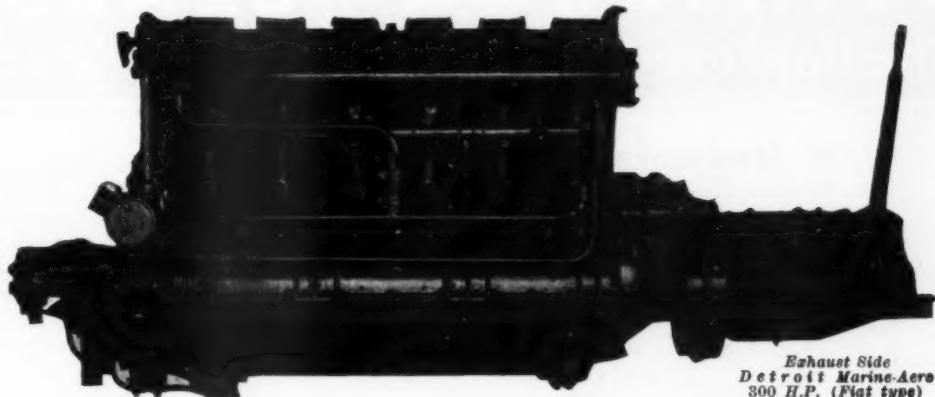
The demand for these engines is taxing our delivery schedule, even at this season of the year. Don't delay your order for spring delivery.

Detroit Marine-Aero Engine Co.



Advertising Index will be found on page 278

Grade Six-Cylinder Marine Engine



Exhaust Side
Detroit Marine-Aero
300 H.P. (Fiat type)

AN engine combining speed and light weight with extreme fuel economy and reliability. And offered at a price approximately one-third the cost of production today. No finer designed or better built engine was ever used in a boat.

The high speed type develops 300 H.P. at 1650 R.P.M. The heavy duty type develops 235 H.P. at 1450 R.P.M. A twin screw installation of these engines in a Matthews 65-ft. semi-houseboat yacht gives 17 miles an hour, although the hull was originally designed to make 12 miles with another pair of engines.

Write today for full details, prices, specifications, etc. If you want an interesting boat at a reasonable cost don't neglect to get this data.

7924 Riopelle Street, Detroit

Eastern Distributors and Service:

Sexton Motor Co., 149 Washington St., New York.

Florida Distributors and Service:

J. R. Sutcliff, 209 N. Narcissus St., West Palm Beach, Fla.



30' x 6' runabout, "Mambisa," owned by A. M. Puente, Havana, Cuba, who writes: "It is needless to say that not only am I very satisfied with the wonderful performance I obtain with the motor and the boat, but several of my friends, prominent yachtsmen here, are seriously considering having similar boats built for them equipped with your Fiat type engine." Speed about 45 miles per hour



Shadow H, 46' express cruiser, just built by Purdy of Trenton, Mich., and owned by Carl G. Fisher, Miami Beach, Fla. Speed 33 miles per hour with two Fiat type

Labrock, a 40' x 9' express cruiser, owned by W. J. Matheson, New York. Speed 30 miles per hour, with engines turning 1700 R.P.M.



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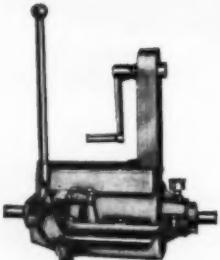
SYRACUSE REVERSE GEARS

The Improved Gear with a Rear Starter

9 Reasons Why The Syracuse Excels

The Syracuse Gear combines economy and convenience to a remarkable degree. Delivered as a unit, it has several features which are usually added accessories. In addition it offers several advantages which multiply motor boating pleasures.

These Features Are Standard Equipment on the Syracuse



Syracuse Advantages Which Increase Boating Pleasures

- (1) Enclosed in Oil Tight Case
- (2) Rear Starter Integral
- (3) Oil Tight Case for Rear Starter
- (4) Thrust Bearing
- (5) Oil Tight Case for Thrust Bearing

- (1) All Mechanism Enclosed in Oil Tight Case. No exposed revolving parts to throw oil.
- (2) Mechanism Works in Bath of Oil.
- (3) In Boat Compact and Clean Cut.
- (4) Carried on its Own Bearings, Insuring Perfect Alignment.

To save the cost of added accessories and to protect yourself against soiled clothing, install a Syracuse

We make a special gear for 100 H.P. Hall-Scott and Similar High Speed Motors

SYRACUSE GEAR COMPANY, Inc.
101 Grape St. Syracuse, N. Y.

Three-Quarters of a Century of Dependability

Since the old days when crews of fast Baltimore clippers and sturdy New Bedford whalers tramped 'round the capstan to the tune of a deep-sea chantey, WC Marine Hardware has been known for its Dependability.

WC NAVY WINDLASS

One of the 1,001 WC Products

Three operations are controlled by one heavying lever. You can heave a line, let the chain run free, or stop it instantly without shifting the position of the hand. Winch head for rope, wild-cat for chain cable; no complicated parts. For anchors up to 150 lbs.



Get This Book of Helpful Hints for Boat Owners

"Sea Craft Suggestions and Supplies" solves those daily "puzzlers" that few know how to handle. Tells how to Box the Compass; what is Proper Ground Tackle; gives hints on Steering Gear, etc.; describes WC Dependable Marine Hardware; tells uses. Compiled from 75 years' experience in making marine fittings. 50c prepaid.

WILCOX, CRITTENDEN & CO., INC.

ESTABLISHED 1847

4 South Main St.

Middletown, Conn.

A Standardized High Speed Commuter!

SEAWORTHY

DEPENDABLE

ECONOMICAL OPERATION



"Corisande" — (New GAR JR. FLYER) — Marshall Field, N. Y. Y. C., Owner

THE GAR JR. FLYER

A 50 FT. TWIN SCREW MOTOR YACHT, operating free of vibration, with remarkable seagoing qualities. Developed from famous GAR JR. II., which is officially credited with cruiser speed record of 44.6 miles per hour, and which has covered OVER 60,000 miles WITHOUT A BREAKDOWN!

SUSTAINED SPEED OF 30 MILES PER HOUR GUARANTEED BY GAR WOOD, INC.,

builders of these remarkable cruisers. Substantially constructed in high-class manner. Hull double planked; outer skin of mahogany. Crew quarters forward; owner's cabin, galley and toilet room aft.

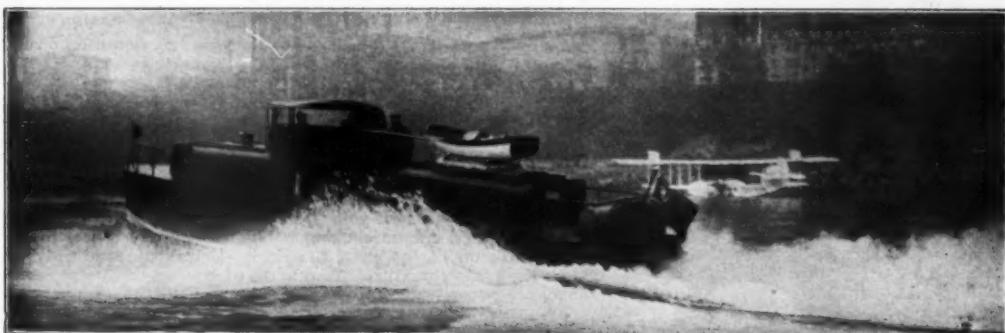
COMMUTE BY WATER!

Save time by traveling back and forth from your Summer home aboard a GAR JR. FLYER. Avoid the heat, dust and inconvenience of commuting by motor or rail.



The roomy bridge deck and forward cockpit, seat 12 persons

Power plant consists of two twin-six "Liberty" motors developing 450 H.P. each, perfect in balance and control, absolutely reliable, and practically automatic in operation.



GAR JR. II completing record-breaking run from Miami to New York (outside route)
1260 miles at sea in 47 hours 23 minutes running time (21 min. less than schedule train
time of famous "Havana Special")

For price, plans and full particulars, apply to

COX & STEVENS

(Exclusive Sales Agents)
Telephone: WHITEHALL 2700

25 Broadway, New York



19 *irresistible features*



1. Sensible Weight—Light enough to carry. Husky enough to stand the gaff.
2. Real Rudder—Steer right up to pier after motor is shut off.
3. Exclusive Self-Locking Tiller—Holds true to course without attention.
4. Automatic Tilting and Locking—Underwater constructions never bother Spinaway. Holds the motor even at 90 degrees angle.
5. Can be Tilted and set for Shallow Water—All the advantages of a horizontal drive.
6. Battery or Magneto Ignition—Suits any preference or condition.
7. Magneto and coil Weatherproof—Damp weather holds no terrors.
8. Easy to Attach—Slip it over stern—turn up two clamp screws.
9. Easy to Start—One pull of the rope. Like spinning a top.
10. Rope Starter—No danger from back-kick of whirling handle.
11. Standard Equipment for both Fresh and Salt Water—No extra charges.
12. Water-Tight Gear Housing—Keeps grease in, and water out.
13. Oversize gas tank—Cast aluminum, non-leaking, durable. Over a gallon capacity.
14. Silent Exhaust Muffler—Quiet as a mouse.
15. Weed-Proof Propeller—Have you ever been stuck in the weeds?
16. Speed of Propeller proper relation to Speed of Motor for Greatest power—Insures maximum power, low operating cost and long wear.
17. Speed Under Sure and Easy Control—A distinct advantage insured by the Special Zenith—Detroit Carburetor.
18. Simply can't lose Propeller—It's there to stay because of rudder. See illustrations.
19. Spark Plug Insulated—Saves many a shock.

The New Special Zenith-Detroit Carburetor

It is almost impossible to over-estimate the speed, easy control and mixture advantages the *special Zenith-Detroit Carburetor* gives the 1924 Spinaway, single and twin models. Here is a speed regulation that is remarkable. Now you can shift your speed lever from low to "full speed" without the slightest motor choking. Your mixture worries, too, are over. Simply turn on the gasoline, the Zenith-Detroit automatically gives your motor the *correct* mixture. And adds, of course, many more miles to the abundance you already enjoy "per gallon" with Spinaway.

Spinaway
Detachable
 Outboard Motors

Advertising Index will be found on page 276



and simplicity

To know the satisfaction of a dependability that is ever present and always constant is to appreciate the vital importance of simplicity in an outboard motor—both in its construction and operation.

Here Spinaway excels. Its supreme simplicity has brought to water-lovers an outboard motoring excellence such as they never thought possible.

Utterly stripped of all trouble-making unessential parts, it completely eliminates the possibility of those annoyances that frequently mar the performance of less simple motors.

Here, too, you have a wealth of power, eagerly responsive to your slightest touch. Pushing through rough waters, scooting over placid pools, the lively vigor and determination of Spinaway wins your honest admiration.

Its speed carries you across the lakes on the wings of the breeze. Distant points are surprisingly near.

With Spinaway—either the Sturdy Single or Superb Twin—you get a new conception of the sport and exhilaration of outboard motoring. You begin to realize just how good an outboard motor can be—and how well Spinaway engineering experts have succeeded in their desire to give you the best motor they knew how to build.

Thousands of carefree hours await you—go today to the Spinaway dealer in your town and let him put this remarkable outboard motor through its paces for you.

If you don't know your Spinaway dealer, write us and we'll tell you his name—and send you the handsome catalog and descriptive literature. Glad to do it.

See us at New York Motor Boat Show—Space "K"

SPINAWAY BOAT MOTOR CO.

100 So. Chicago Ave., Freeport, Illinois

California Branch: A. G. Hebgen, Mgr., 440 Market St., San Francisco.
New York City Branch: A. L. Rankin, Mgr., Dept. O, 155 Chambers St.

WHY PAY MORE—YOU CAN'T BUY MORE!
Sturdy Single Battery, \$75. Magneto, \$85 (2 H.P.).
Superb Twin Battery, \$115. Magneto, \$125 (3 H.P.).

Spinaway
Detachable
Outboard Motors



No Doldrums

—with Westinghouse
Diesel-Electric Drive

Power when you need it—for calm or storm.

Perfect control in narrow straits or shallow waters.

Convenience—comfort—cleanliness—these are the benefits of Westinghouse Diesel-Electric Drive which has been installed on the yachts Cutty Sark, Guinevere, Elfay, Valero II and others.

In emergencies, no system of propulsion responds more quickly to the will of the navigator.

No system of control is more convenient than the direct-from-the-pilothouse control of Westinghouse Diesel-Electric Drive.

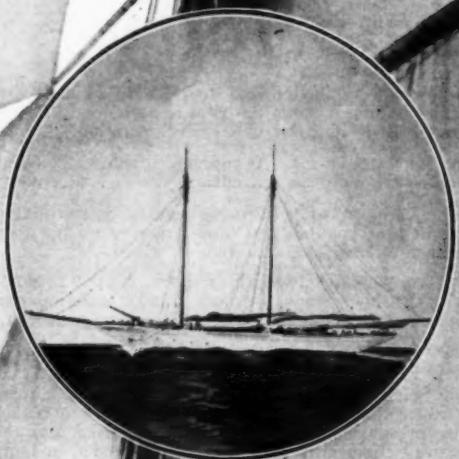
In the use of fuel, the system is most economical, and the absence of smoke is a desirable feature.

Every electrical convenience of the home may be enjoyed when this propelling system is used.

Even the sails of the yacht Guinevere are hoisted electrically.

Westinghouse Diesel-Electric Drive knows no doldrums.

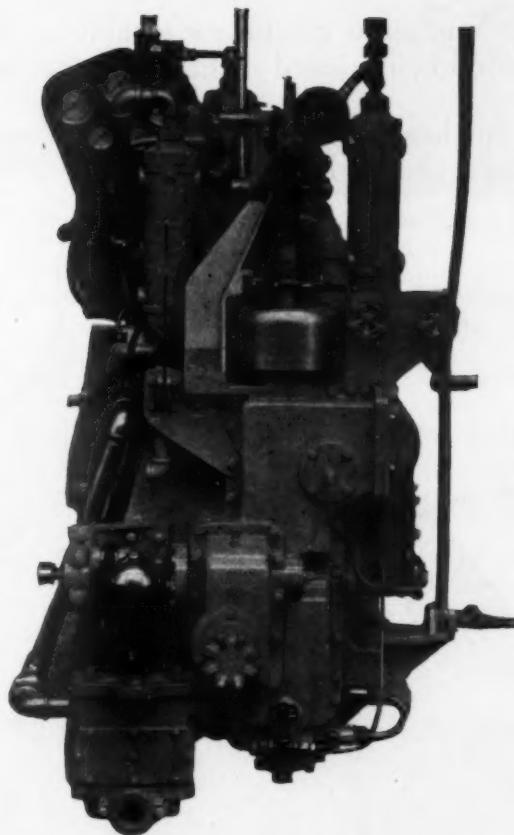
Westinghouse Electric & Manufacturing Company
East Pittsburgh, Pennsylvania
Sales Offices in All Principal American Cities
Service Stations in Principal American Ports
Special Pacific Coast Representatives
Hunt, Mirk & Co., San Francisco, Cal.



Winton

90-100 H. P.
Six Cylinders

6 $\frac{1}{2}$ " x 8"
Four Cycle Type



INTRODUCING

A Smaller Winton Diesel Engine for
Medium Sized Yachts

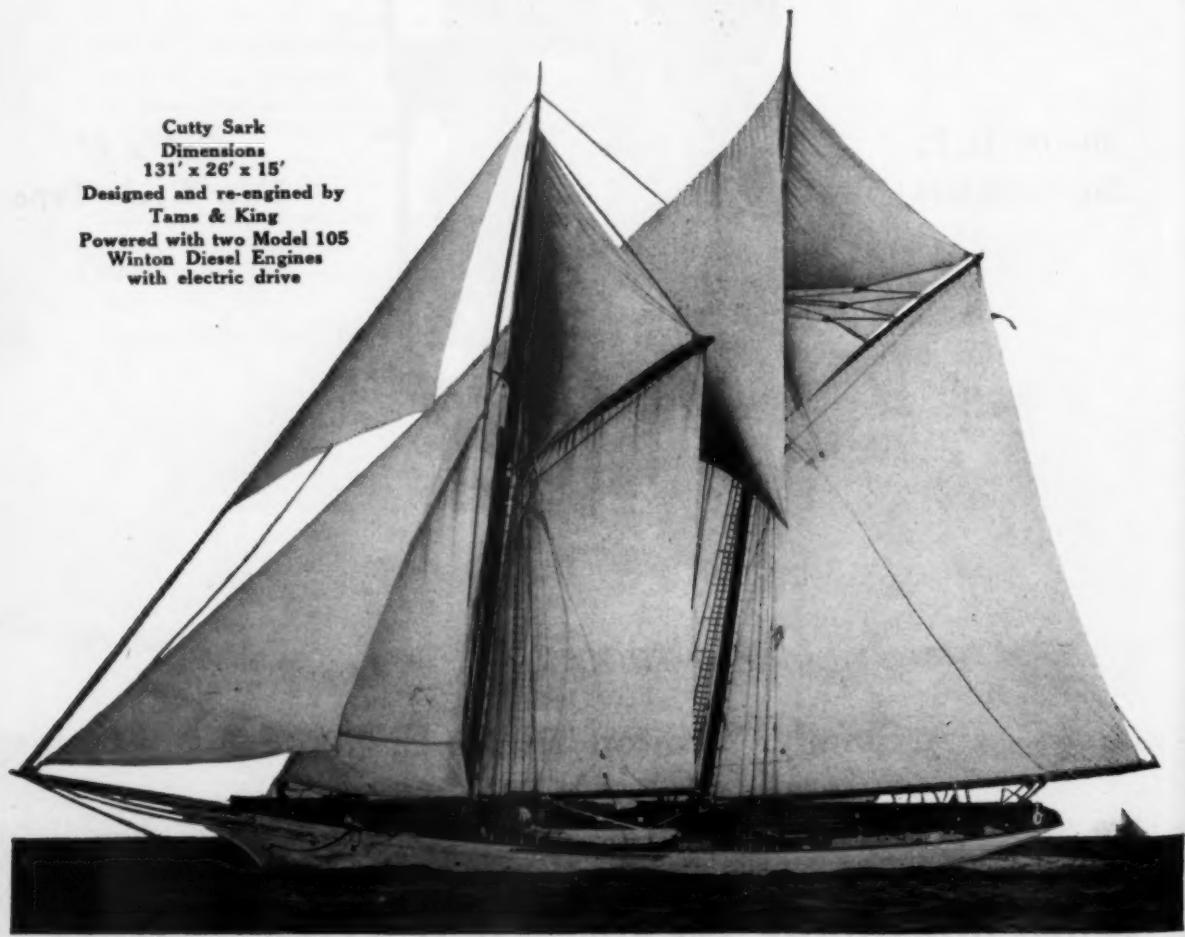
Winton Engine Works, Cleveland, Ohio, U. S. A.

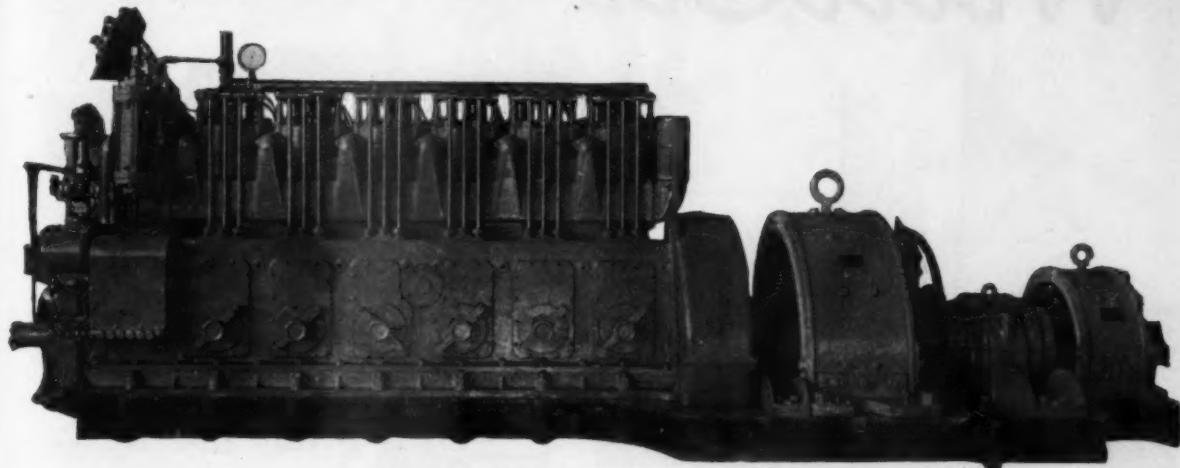
Winton

THE suitability of Winton Diesel Type Oil Engines for large yachts and auxiliaries has been proved by many notable installations.

It remained for Winton to produce a smaller and lighter weight Diesel Engine for medium sized yachts requiring less than 125 H.P.

This requirement has now been met in the Winton Model 105, 90-100 H.P. Six Cylinder Engine.



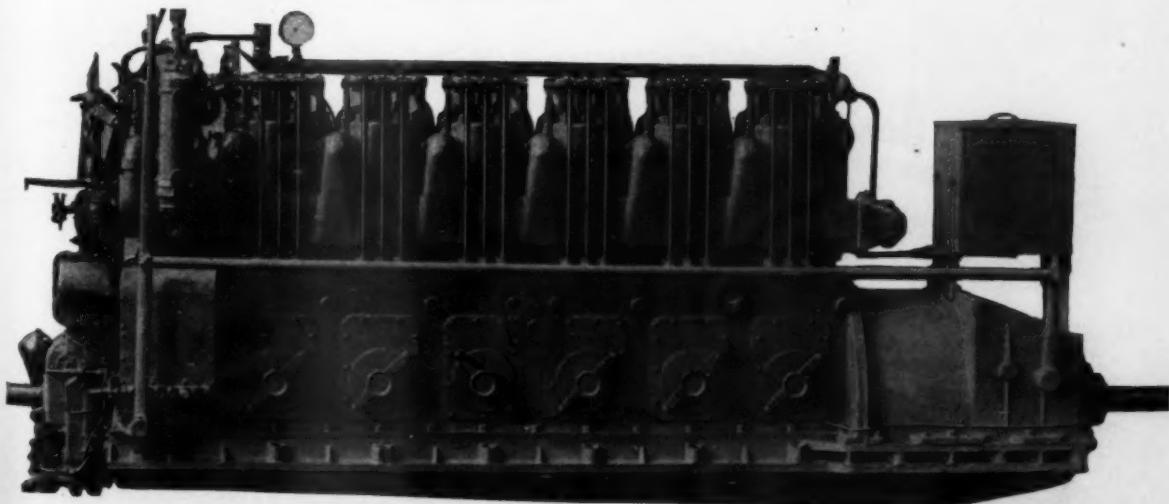


Winton Diesel Model 105 with Electric Drive

THIS engine is but little greater in size and weight than a heavy duty gasoline engine of the same power. It operates at one-fifth the fuel cost.

Sufficient fuel oil for an entire season is carried in the same storage as a temporary supply of gasoline. This means an important increase in cruising range.

May be used in single or twin units, direct drive or electric drive.



Winton

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Winton



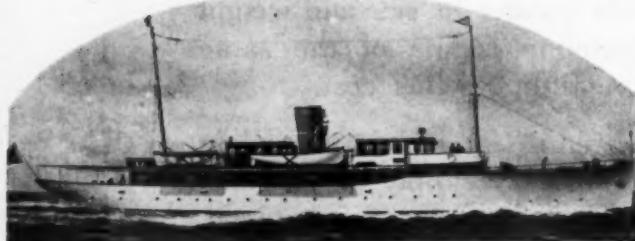
Eljay, owned by W. G. Jamieson



Nourmahal, owned by Vincent Astor, New York



Cynthia, owned by Merrill B. Mills, New York



Ohio, owned by E. W. Scripps, Cincinnati

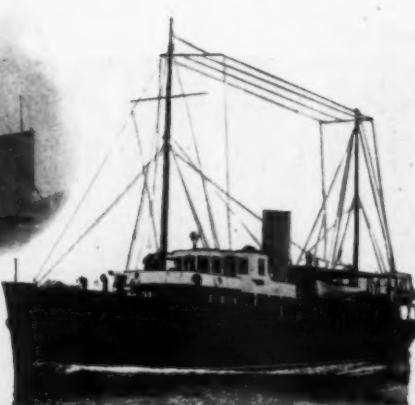
WINTON Diesel Type Oil Engines have been thoroughly successful in meeting the power requirements of experienced yachtsmen and of naval architects who specialize in Diesel work.

Full data, specifications and other details may be had on application from any authorized representatives or from

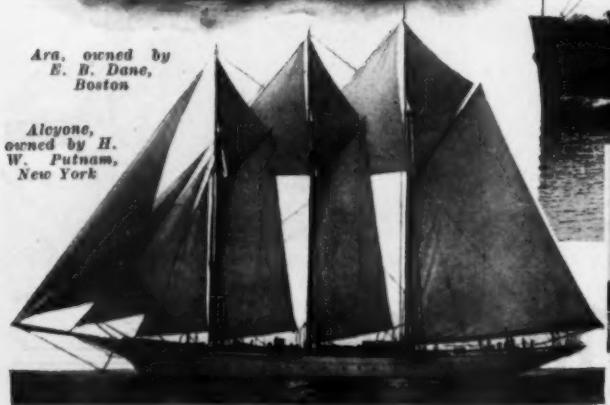
WINTON ENGINE WORKS
CLEVELAND, OHIO, U. S. A.



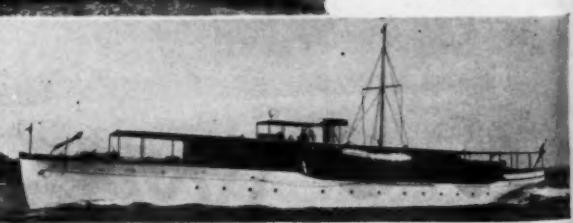
Ara, owned by E. B. Dane, Boston



Alcyone, owned by H. W. Putnam, New York



Dolphin, owned by Mortimer L. Schiff, New York



Coleen, owned by S. A. Salvage, New York





PACKARD

Here are shown the 5 models now comprising the line of Packard Marine Engines. Each, in its class, is representative of the finest type of modern high speed, light weight construction.

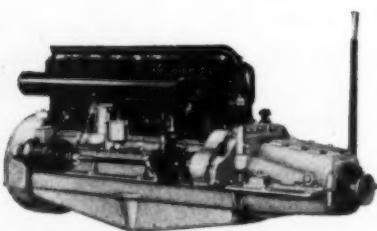
They are very compact, extremely simple in design, parts easily accessible, unusually free from vibration, and very flexible in operation.

All are equipped for salt or fresh water service. All are made in right or left hand rotation for twin installation.

From the viewpoint of reliability and long life they are, without doubt, the finest engines made. Full details regarding each model furnished on request.

*New trade discounts now applicable to boat builders,
marine architects, and marine engine dealers.*

PACKARD MOTOR CAR COMPANY, DETROIT

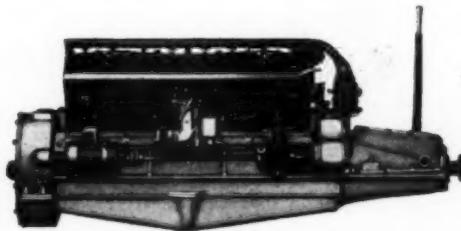


Model—1M—268
Single-Six. 45 H. P. Weight 625 lbs.
\$1,500

Specially designed for all round service in boats from 18 to 25 feet in length, and for larger auxiliaries. Brings to motor boat owners a degree of reliability and economy never before equalled. Equipped for salt water service. Right or left hand rotation—ideal for twin screw installation in cabin cruisers and fishing boats. Extremely flexible—can be throttled down to trolling speed.

Furnished with ignition and starting switch; oil gauge and ammeter; tool kit; battery; electric starter; hand starting bar; propeller shaft coupling.

Built to Packard standard of fineness; and showing extraordinary durability and economy. Simple in design and parts extremely accessible.



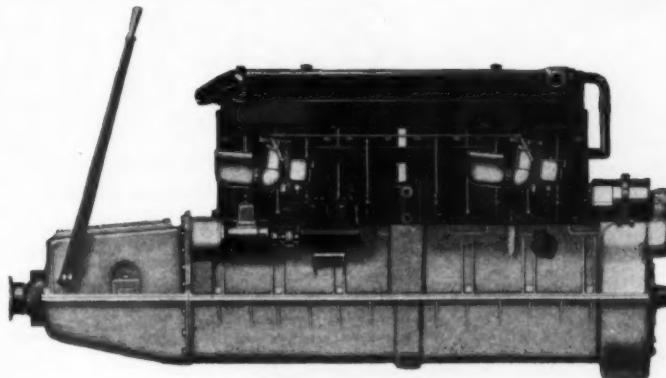
Model—1M—357
Straight-Eight. 60 H. P. Weight 790 lbs.
\$2,000

One of the most dependable and economical marine engines of its type and speed ever developed. Its straight-eight design makes it unusually compact and its parts extremely accessible. The ideal power plant for those requiring a speed of 20 to 30 miles an hour in boats 22 to 35 feet in length.

Furnished in right or left hand rotation, and, therefore, can be used for twin screw installations in cabin cruisers from 35 to 40 feet in length. Very flexible and free from vibration, and meets the requirements of all types of service.

Furnished with ignition starting and lighting switch; oil gauge and ammeter; tool kit; battery; electric starter and hand starting bar; propeller shaft coupling.

MARINE ENGINES

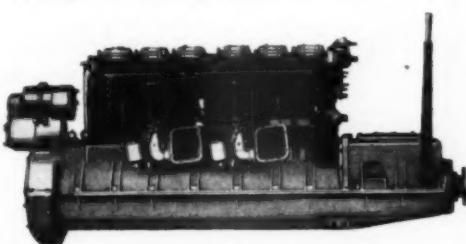


Model 2M-1551
Six Cylinders. 275 H. P. Weight 1690 lbs.
\$10,000

Here is one of the greatest marine engines ever perfected. It is an airplane type, modeled after the design of the world famous Packard airplane engines used in the giant dirigible Shenandoah (formerly the ZR-1). It is the last word in power plants for express cruisers. Furnished in right or left rotation for twin installation. Designed for salt water service. Its compactness and accessibility of parts it is without an equal. Built to operate on commercial gasoline.

Any cylinder can be removed, valves inspected, bearings inspected and replaced in less than two hours, without disturbing any of the other manifold connections. So finely built, and so practically designed that it is destined to win as great a place among yachtsmen as its airplane prototype holds among aeronautical men.

No express cruiser can hope for the first rank in power efficiency, reliability and economy without this great engine.



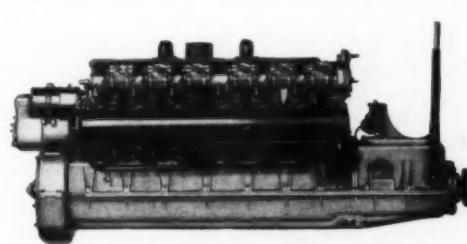
Model 1M-618
Famous Gold Cup Type
Six Cylinders. 200 H. P. Weight 900 Lbs.
\$5,000

Twice winner of the Gold Cup Speed boat races, and without a doubt the finest engine in the motor boat field. Holds world's endurance record—1064 miles in 24 hours without mechanical adjustment.

So compact that it is the finest installation possible in runabouts of 25 to 40 feet, with speed range up to 50 miles an hour. Especially adaptable, too, for light cabin cruisers and sedans either single or twin screw installation.

No mechanical complication, all moving parts easily accessible and built of finest materials obtainable. True to the Packard traditions of reliability and durability.

Furnished with ignition, starting and lighting switch; electric starter; ammeter; oil gauge; tool kit; propeller shaft coupling; battery and hand starting bar.



Model 1M-1237
Sweepstakes Type.
12 Cylinders. 400 H. P. Weight 1168 lbs.
\$8,000

Designed originally for the Sweepstakes race, and famous all over the world for its wonderful showing, two entries finishing second and third without any mechanical trouble during the 150 mile grind.

For high class runabouts, racing boats and hydroplanes, it is, without doubt, the finest engine on the market. Develops speed up to 65 miles per hour.

Dependable and reliable as only Packard engines can be. Built of finest materials and designed for long life. Can be used either with a direct drive propeller or through a gear box. The ideal engine where maximum power requirements are desired with compactness and light weight.

Furnished with ignition, starting and lighting switch; electric starter; ammeter; oil gauge; tool kit; propeller shaft coupling; battery and hand starting bar.

Ask
the Man
Who Owns
One~

HAVE A "BOAT ETERNAL" OF CYPRESS, "THE WOOD ETERNAL."



"PLANK WITH
CYPRESS
"THE WOOD ETERNAL"

AND YOU
PLANK
BUT
ONCE"

"Cypress for Boats is as Natural as Boats for Water."

This historic fact is as familiar to "ye ancient mariner" as it ought to be to the man in the first enthusiasm of learning how to *enjoy* "the earth and the waters thereof."

"The Wood Eternal" is the established standard for all sorts of boats by reason of the same *non-rot, non-warp* qualities that have made it the standard lumber for all land-uses where outdoor exposure invites decay, or other kinds of "misbehavior."

But you must be sure to specify and insist on genuine "Tidewater" Cypress, grown in the great swamps near the sea, every board or bundle being easily identified by the Cypress Arrow trade mark indelibly stamped by the responsible mills who are admitted to membership in the Association.

MOTOR BOAT?

SAIL BOAT?

Tide Water
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"The Wood Eternal"

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ROW-BOAT?

You'd better get hold of the *brand new* Boat Book, Vol. 19 of the famous Cypress Pocket Library. 192 pages, 46 illustrations. 4 FULL-SIZE WORKING PLANS for home-talent boat builders. Laden fore, aft and amidships with authoritative boat facts and nautical lore. It will reach you FREE, promptly on request. (You'll enjoy it—and keep it—and be glad you learned of it, boat or no boat!)

Your local dealer will supply you. If he hasn't enough Cypress let us know at once.

**SOUTHERN CYPRESS
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1317 Poydras Bldg., New Orleans, La., or
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Insist on "tide water" Cypress—you can identify it by this mark:



Richardson

BOATS



Harriet, 40' x 9' 6" x 3' Express Cruiser built in 1923 for Philip G. Schaefer, Buffalo. 10 miles per hour.

Let Us Build a Boat for You

WHETHER you want a cruiser, runabout or work boat, we can build you a first class satisfactory boat at the lowest reasonable cost. We can prove the quality by referring you to scores of fine boats we have built. We will prove the low cost by submitting a quotation you cannot equal at any other first class experienced boat yard.

The express cruiser "Harriet" shown above is our idea of a properly standardized boat. The hull is our standard 40-foot V-bottom design; we have produced many fine boats of this type so the design is thoroughly perfected and the construction standardized for economical production. But the interior arrangement is entirely new, designed particularly for the owner's requirements. It has a forward cockpit, large glass-enclosed deckhouse, fore and aft cabins, and a big covered cockpit aft. With a six cylinder Sterling Sea Gull she does about 20 miles per hour.

We have similarly standardized designs of other sizes, including runabouts 20, 25, 28, 32 and 35 ft. in length and cruisers 26, 30, 38, 40, 45 and 50 ft. long. All of these can be supplied with whatever arrangement, speed, engine and equipment you want. We also supply K. D. frames for them to other builders and to amateur builders throughout the world. By standardizing the hull designs in this way we can

give you all the economy of standardized construction without sacrificing your ideas of accommodations and individuality.

We have just delivered two 35 ft. Sedan runabouts on U. S. Government order, which proves both the quality and low price of Richardson boats. These runabouts have mahogany planking over oak frames, mahogany Sedan cabin with toilet, and separate compartment for the operator. Speed about 25 miles with 200 H. P. Hall Scott engine.



Richardson Standardized 20' runabout. Speed about 16 miles per hour. With quantity production on this model, we are able to quote a very attractive price on it. Write for details.

Let us quote on the size and type of boat you are interested in. Tell us your requirements.

Richardson Boat Company, 370 Sweeney St., North Tonawanda, N. Y.

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KUHLS' Elastic Seam Composition

Used
by the
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Will
Last
for at
Least
Ten Years



The standard material for filling the deck and plank seams of motor boats, yachts and steamships. Widely used by motor boat, yacht and shipbuilders, by the U. S. Government and by thousands of amateur boat builders and yachtsmen when overhauling their boats. Carried in stock by marine supply dealers, ship chandlers and hardware dealers everywhere.

This composition is the most satisfactory and durable filler you can use. One filling lasts eight to twelve years or longer. It becomes semi-hard but never brittle, adhering closely to the sides of the seams, and retains all its original elasticity through many years of hard service.

Extremes of weather and temperature have no effect on Elastic Seam Composition. Its elasticity causes it to give with the twisting and bending of the hull and to compensate for the swelling and shrinking of the planking.

Five colors—White, Gray, Yellow, Black and Mahogany

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Elastic Flat Yacht White

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Elastic Deck Varnish

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Elastic Bright Green and Red Copper Paints and Boot Topping

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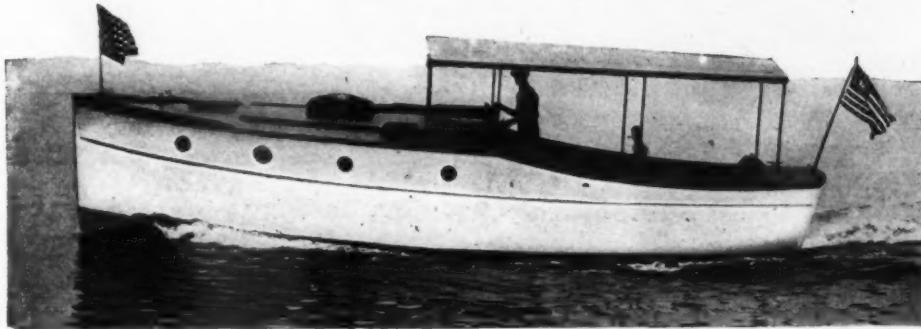
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The INTERNATIONAL THIRTY TWO

The First "Everybody's Motor Boat"



RAISED DECK CRUISER

\$3950 with Kermath 20 H.P. Engine,
speed 10 miles per hour
\$4350 with Kermath 35-50 H.P. En-
gine, speed 12 miles per hour

A big, able, seaworthy cruiser
that you can try before you buy

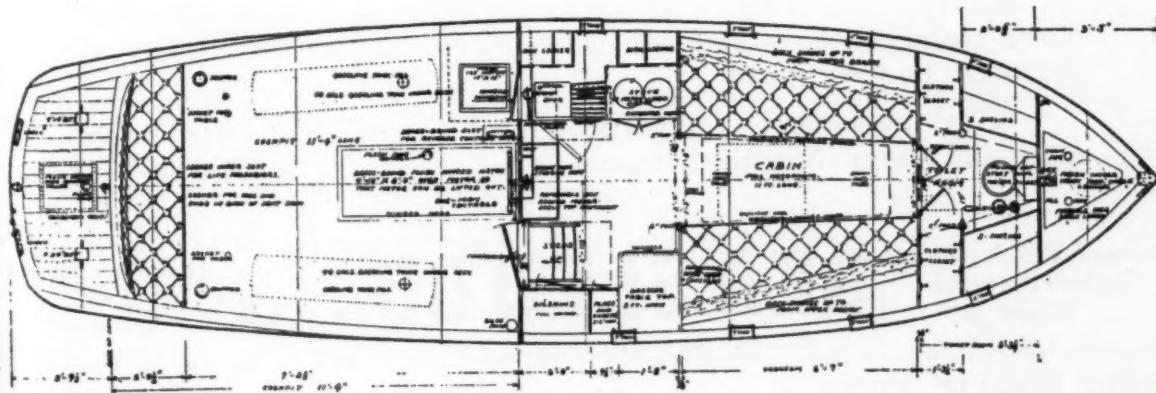
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SHIPBUILDING AND MARINE ENGINEERING
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*Everything you want in a cruiser—roomy accommodations, complete equipment,
seaworthy and economical*



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Standard 25' Single Surface Propeller Sea Sled 40 MPH.

A COMPARISON

The following comparative diagrams show graphically the advantages of the inverted bottom and surface propulsion system, which characterize Sea Sleds, when contrasted with conventional boats under the same conditions.



SEA SLED DINGHYS

DISTRIBUTORS WANTED—The hull advantages of large high powered Sea Sleds in a small boat—unequalled for rowing, outboard motors or yacht tender use. Exceptionally convincing selling points and a product which lives up to them.

A unique opportunity for high class distributors to handle these novel crafts whose superiority is acknowledged by the leaders of the entire boating world.

Write immediately for particulars of our national distributing plans and liberal Agents' discounts.

Inverted V-Bottom and
Surface Propeller
Boats

SEA SLED CO., LTD.

Trade Mark Reg. U. S. Pat. Off.

Hickman Patents
in all
Countries

WEST MYSTIC, CONN.

New York Office, 41 Park Row

Advertising Index will be found on page 276

Bulletin No. 42

Inverted V-bottom and Surface Propeller Boats.

SEA SLED

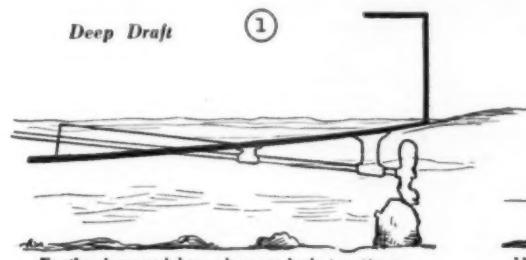
Trade Mark Reg. U. S. Pat. Off. Trade Mark Reg. Canada.

Hickman Patents in all countries.

The Advantages of the Surface Propeller Boat and of the Sea Sled Hull over the older types of Motor Boats

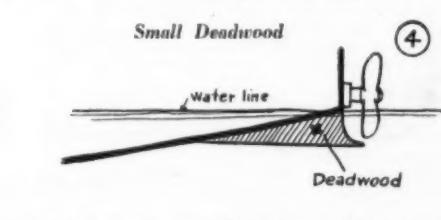
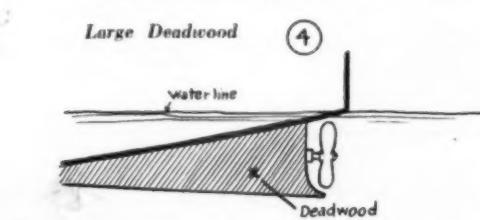
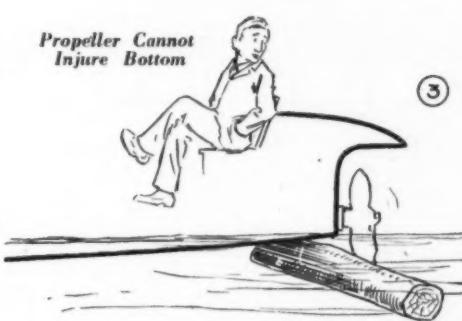
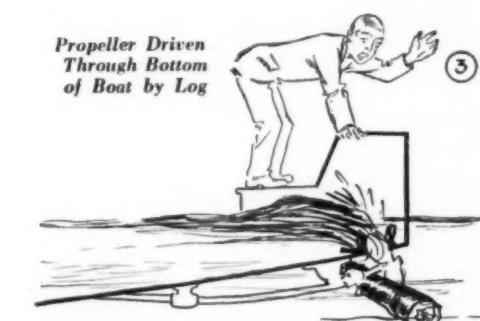
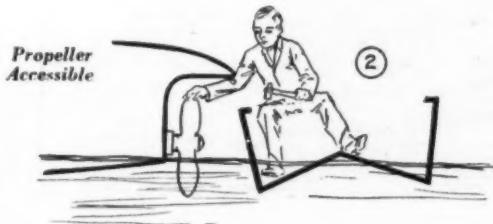
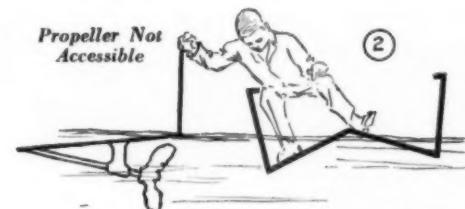
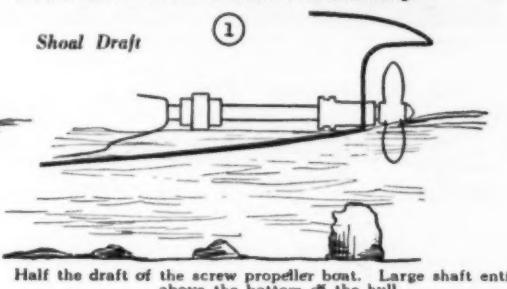
The Screw Propeller Boat

With propeller totally submerged and with small under-water propeller shaft and bearings



The Surface Propeller Boat

The propulsion system under Albert Hickman basic patents. With propeller shaft above the surface of the water with the boat at speed, and with the dip of the propeller blades regulated by the position of the shaft in relation to the bottom of the boat and by the inertia of the water when the boat is running.



The Tunnel Bottom Boat

Speed Limited

⑤



Tunnel destroys efficiency and absolutely limits speed of boat on account of change in direction of flow

The Surface Propeller Boat

Speed Unlimited

⑤



In shoal draft work efficiency not affected. Speed unlimited. Direction of flow unchanged

The Screw Propeller Boat

Fouled in Weeds

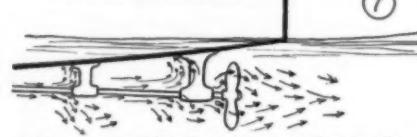
⑥



No submerged propeller, "weedless" or otherwise, can travel in heavy weed growth

High Shaft Resistance

⑦



The resistance caused by dragging a single propeller shaft and its bearings through the water often amounts to 30 per cent of the total resistance of the boat. The resistance of multiple propeller shafts on high speed boats becomes prohibitive

Absolutely Weedless

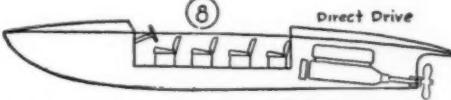
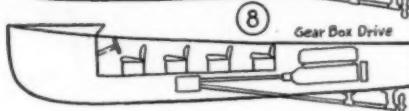
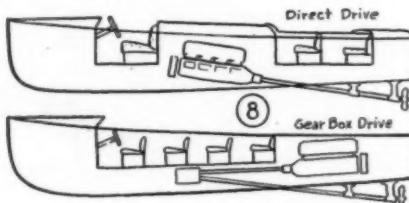


Runs in the heaviest matted weeds, eel-grass, kelp, hyacinth or wire-grass with practically no effect on speed

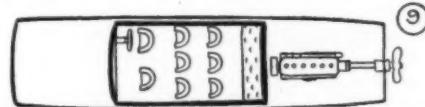
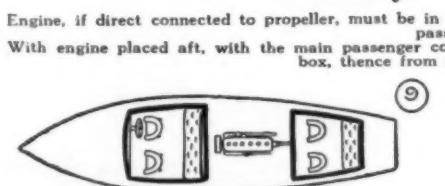
No Shaft Resistance



Nothing is dragged under water. The world's record for displacement boats is held by the surface propeller Sea Sled Orlie III. 57.79 statute miles per hour, 13.71 miles faster than screw propeller boats of the same weight per horsepower. Multiple propellers can be used without decreasing efficiency



All passenger space in one cockpit amidships and ahead of the noise and heat of the engine. Engine direct connected to propeller by one short, stout shaft



Engine, if direct connected to propeller, must be in centre of boat to give efficient shaft angle. This breaks up passenger space

With engine placed aft, with the main passenger cockpit forward, the drive must be forward to a noisy gear box, thence from gear box back to propeller

In the screw propeller runabout with engine direct connected to propeller, the engine occupies the best part of the boat, amidships, and the passenger space has to be divided into two cockpits in the bow and stern

In single engine, single surface propeller Sea Sleds the entire midship section of the boat can be made into one passenger cockpit, the engine being placed in the stern behind a bulkhead, where noise, smoke or heat cannot reach the passengers. Two cockpit arrangement, with engine amidships, can be used just as readily if desired

Stern Squats at Speed

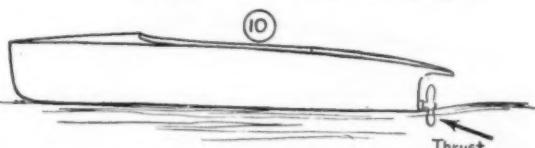
⑩



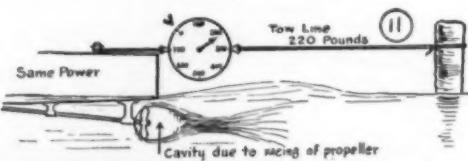
Partly because of the direction of the thrust of the propeller the boat runs at speed with the bow high and the stern squatting, an inefficient position. Stern squats still further in shoal water

Hull Rides in More Level Trim

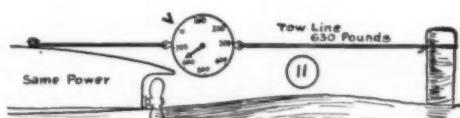
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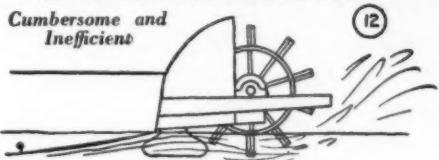
The thrust being upward and forward, tends to make the boat run in level trim, the most efficient position. The stern does not squat in shoal water



Towing ability of speed types poor because small area of propeller, for a given power, results in total cavitation

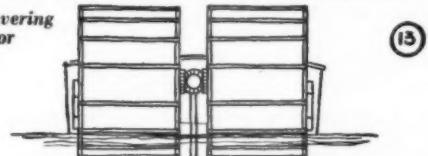


Great towing ability, even in speed types. Submerged area of propeller for a given power is so great that total cavitation never occurs. No racing of propeller

The Stern Paddle-Wheel Boat

Unwieldy and heavy. Resorted to only to attain shoal draft

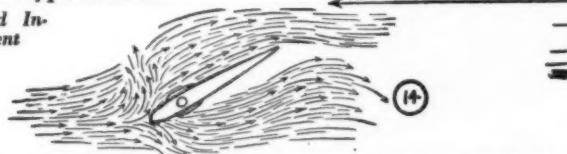
Manoeuvring Poor



Stern view. The manoeuvring ability of the stern-wheeler is poor, with rudders only to depend on for steering

The Usual Type Rudder

Thick and In-efficient



A heavy blade, thick enough to carry its supporting rudder-stock, and turned by its stock from the front. High resistance

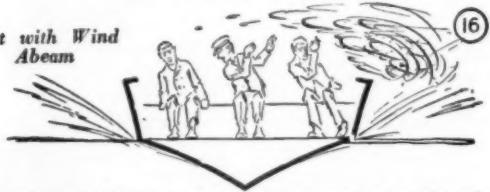
The V-Bottom (or Round Bottom) Hull

Initial Stability Low



Stability at rest poor. Owing to the V-bottom (or round-bottomed) form, when the boat is listed the centre of displacement is carried nearer the keel

Wet with Wind Abeam



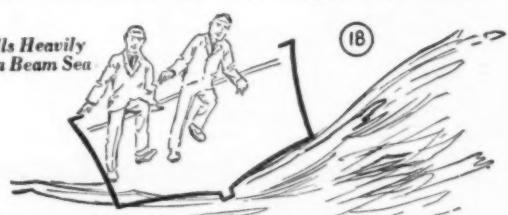
A bow wave and masses of spray are thrown out at the sides when the boat is running. In a cross wind the spray is blown aboard aft

Pounds in Choppy Water



Running at high speed in choppy water, the hull comes in direct contact with the water and the pounding is sharp and severe

Rolls Heavily in a Beam Sea



In this form of hull, the tendency is for the deck to remain parallel with the surface of the water when running at speed in a beam sea

The Surface Propeller Boat

Compact and Powerful



The slow speed surface propeller is comparatively light in weight, compact and the most efficient method of propulsion known, and is as shoal in draft as the stern wheel

Manoeuvring Good



Manoeuvring ability is superior to that with any other type of propulsion, twin propellers, with only the lower blades immersed, turning right and left handed, enabling the boat to be steered rapidly, turned in her length and moved directly sideways in docking

The Hickman Side-Plate Rudder

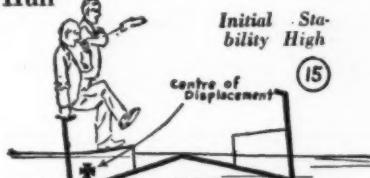
Thin and Efficient



A light, thin blade, hinged in front and operated by a push-rod at its after edge. Low resistance

The Inverted V-Bottom (Sea Sled Patent Type) Hull

Initial Stability High



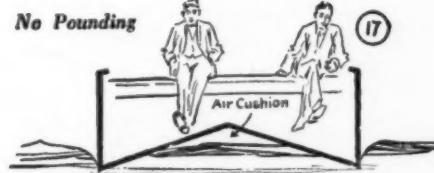
Stability at rest good. Owing to the inverted V-bottom form, when the boat is listed the centre of displacement is carried out nearer the side, making it impossible to capsize

16 Dry Under All Conditions



No bow wave or spray is thrown out from the sides to be blown aboard. All spray is trapped and passes under the inverted V-bottom of the boat

No Pounding



When running at high speed in choppy or rough water the air cushion carried between the bottom of the boat and the water practically does away with pounding. The rougher the water the less the Sea Sled pounds, compared with other boats

Rolls Little Beam Sea



When running at speed in a beam sea tends to keep the deck level. Rolling largely done away with. British Admiralty tests of a Sea Sled showed a maximum roll of only 5 degrees when running at 32 knots in a stiff beam sea. This is one of the most remarkable characteristics. No "sea sick" tendency

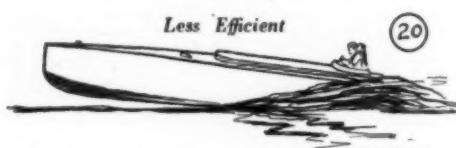
The V-Bottom (or Round Bottom) Boat

Trips in a Following Sea



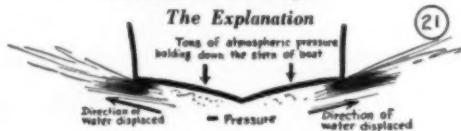
When driven at speed with the bow down in a following sea the boat will yaw and may trip and capsize. When listed to port the boat will run to starboard because of the *incurving* water lines forward

Less Efficient



The V-Bottom, or round bottom, boat runs at speed with her bow in the air and with her stern depressed—squatting—resulting from the adhesion of the water to the hull aft, a fundamental defect of this design

The Explanation



The water is thrown out from under the bottom of the boat at each side, leaving an area of low pressure beneath the bottom aft, which the atmosphere tries to fill. This defect occurs at speed in any boat in which the water is thrown out at the sides when the boat is running

30 miles an hour with a load. Much fuss. Same power



With an increased load the speed drops rapidly and the boat rises by the bow and squats by the stern, making a great disturbance when running. For explanation see cut 21

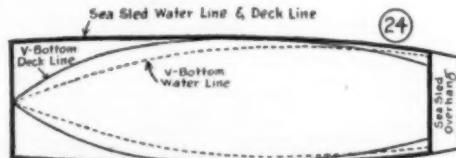
The High-Speed V-Bottom Boat

Chines can catch and trip the boat on a turn at speed

Tripping on a turn to Port



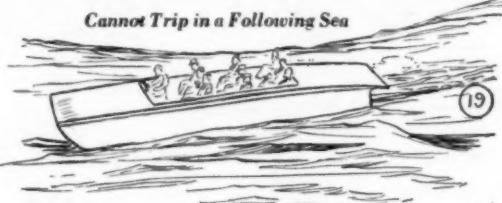
Because of the incurving water lines forward the bilge angles must be relatively small aft



Comparison of deck space and of cockpit and cabin space of the two types, of the same length and beam

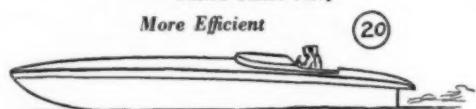
The Inverted V-Bottom (Sea Sled Type) Boat

Cannot Trip in a Following Sea



The Sea Sled can be driven at high speed in a following sea absolutely without danger of tripping or capsizing. When listed to port the boat will run to port because of the *outcurving* waterlines forward. This is the reason for the extraordinary seaworthiness of the Sea Sled and for its adoption as the only speed boat of the United States Navy

More Efficient



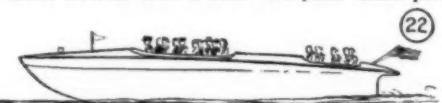
The Sea Sled hull runs at speed in level trim without squatting aft, all adhesion of water aft being done away with, as a result of the basic design of the hull

The Explanation



All displaced water and great quantities of air are thrown in under the bottom, creating an air cushion and positive upward pressure along the length of the bottom, much greater than the atmospheric pressure above. Result, no adhesion of water. Boat runs in level trim. This is why the Sea Sled hull is so much more efficient than the V-bottom and holds all speed and efficiency records

40 miles an hour with a load. No fuss. Same power



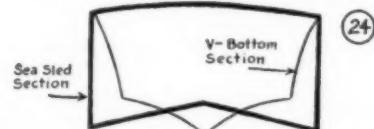
With an increase of from twice to three times the load of the V-Bottom boat the Sea Sled will make almost as great speed as when running light and will travel in nearly the same trim. Explanation as in cut 21

The High-Speed Inverted V-Bottom (Sea Sled) Type
Chines cannot catch and trip the boat

Turning to Port



Outcurving water lines forward make it possible to use anti-tripping angles of the sides aft, which are out of contact with the water when the boat is running ahead



THE SEA SLED COMPANY, Ltd., West Mystic, Conn.

New York Office: 41 Park Row. Telephone Cortland 1575

Canadian Licensees: Canadian Vickers, Ltd., Montreal

Licensees for Great Britain and the Continent of Europe: Swan, Hunter & Wigham Richardson, Ltd., 21 Russell Square, London, W. C. 1, England

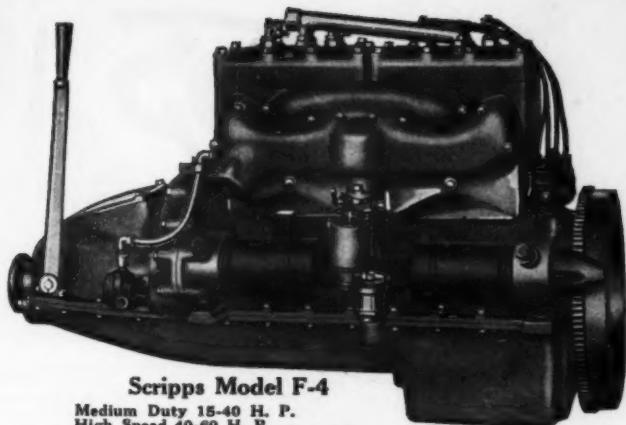
Scripps

The Hacker Boat Company's latest standardized boat, the "Dolphin" model 23' x 6' runabout is regularly equipped with the Scripps F-4. Speed 25.6 miles per hour



The standardized seagoing 32' schooner built by Casey Boat Building Co., New Bedford, Mass., which proves the F-4 is just as suitable for heavily constructed boats

Another standardized Casey boat, a heavy 32' x 10' cruiser with nearly double the displacement of average 32' footers. The F-4 drives it.



Scripps Model F-4

Medium Duty 15-40 H. P.
High Speed 40-60 H. P.
4 Cyl. 3 3/4" x 5". Weight 550 lbs.
Complete including starter, \$750

THE F-4 is the newest Scripps model, introduced during the season of 1923 and already the outstanding motor of its class. It is a light weight, compact, clean cut power plant, tremendously powerful for its size and free from vibration throughout its speed range of 500 to 2600 revolutions per minute.

Many prominent boat builders immediately adopted the F-4 for their stock models, realizing that it offers the greatest power, speed and reliability at a price \$300 to \$500 less than usually charged for an engine of its power and quality. Suitable for fast runabouts, cruisers, work boats and auxiliaries up to 40 feet.



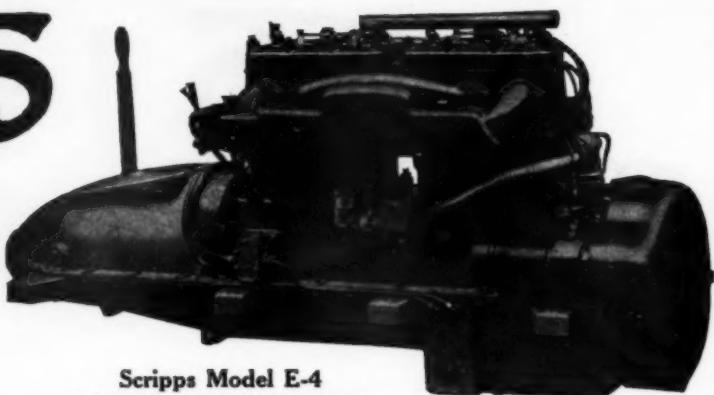
Baby Bearcat, the 24' x 6' Belle Isle runabout easily does better than 25 miles per hour with the F-4 Scripps

SCRIPPS MOTOR CO., 5819 Lincoln Avenue, Detroit, Mich.

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Scripps

The versatility and power of the Scripps E-4 is shown by the variety of installations below, all of them handsome boats you would be proud to own



Scripps Model E-4

Medium Duty 30-45 H. P., 1050 lbs.
High Speed 45-70 H. P., 975 lbs.
4 Cyl. 4 1/2" x 6"
Complete, including starter, \$1250



Mary Alice II is a 50'x12' 6" motor yacht owned by Dr. F. S. Shifer, Glenside, Pa. E-4 drives this 15 ton cruiser. This is the third Scripps owned by Dr. Shifer



This 28 ft. stock runabout built by Dachet Carter Boat Co., Benton Harbor, Mich., has the E-4 and travels 26 miles per hour



A 28 ft. Greenport runabout with Scripps E-4. 20 miles per hour



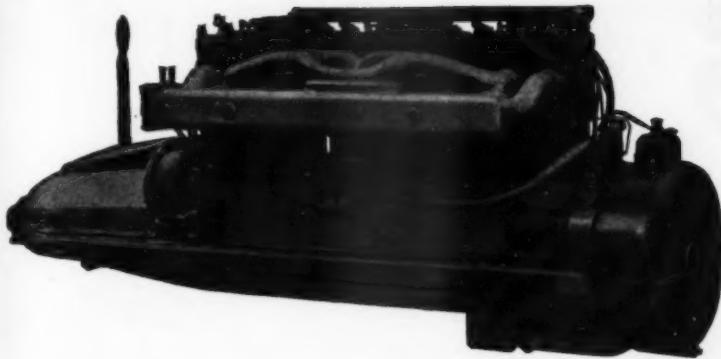
Nonie, a 28 ft. Hacker designed runabout built by W. J. Masters for Lee N. Parrish of Hamilton, Ohio. 26 miles with an E-4



Starlight is a 38' x 9' cruiser which took first in half a dozen or more big races during 1923. Owned by W. H. Sterling of the Bergen Beach Yacht Club, Brooklyn, N. Y.

SCRIPPS MOTOR CO., 5819 Lincoln Avenue, Detroit, Mich.

Advertising Index will be found on page 278



Scripps Model E-6

Medium Duty 40-60 H. P.
1400 lbs.
High Speed 65-100 H. P., 1290 lbs.
6 Cyl. 4½" x 6"
Complete, including starter, \$1750

Mandarin, a 42' cruiser owned by Vice Commodore Cornish of the California Yacht Club, Los Angeles. Built by the Seacraft Corporation from designs by D. M. Callis. Planked and finished with teak, this beautiful boat is driven 13 miles per hour by her Scripps E-6

THE Scripps E-6 is an engine for the finest motor yachts built, for fast runabouts, cruisers and houseboats where the quiet vibrationless power of a six cylinder engine adds the final touch of refinement and luxury.

A single E-6 in boats up to 60 ft., or a twin screw installation in others up to 75 ft., makes the finest power equipment you can buy, and listing complete at \$1750 it is a value unequalled by any other high grade power plant in the marine market today.



This 65 ft. yacht is the Muroma, built by Matthews Company, Port Clinton, Ohio. A standardized semi-houseboat cruiser with two E-6 and a maximum speed over 14 miles



Crab is a typical Red Bank cruiser, designed for seaworthiness and used for off shore fishing by her owner, Mr. S. W. Labrot of Annapolis, Md. The E-6 sends this 35 footer along at 18 miles per hour



Ros' Lady, a 58 ft. Herreshoff boat that does 13 knots with the E-6. Owned by Mr. Henry A. Wise Wood of New York

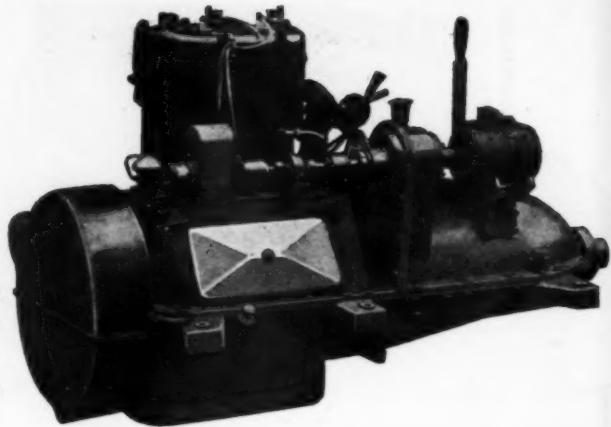
SCRIPPS MOTOR CO., 5819 Lincoln Avenue, Detroit, Mich.

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Scripps

Scripps Model D-2

Medium Duty 10-12 H.P.
P., 600 lbs.
High Speed 15-18 H.P.
525 lbs.
2 Cyl. 4 1/4" x 6".
Complete including
starter, \$650.



This little 35 ft. cruiser "Detroit" blazed a new trail when she crossed the Atlantic in three weeks under her own power in 1912. A 2-cylinder Scripps contributed to her epoch making achievement



Rumsonhill is a 30' limousine runabout designed by Murray Watts, built by Red Bank and owned by Thomas N. McCarter, president of the Public Service Corporation of New Jersey. The Scripps E-6 drives this boat 22 miles per hour

THIS 2-cylinder edition of the Scripps is an up-to-date refinement of "the Motor that Crossed the Atlantic." That famous exploit not only showed the world the possibilities of motor boat cruising but it proved beyond question that the Scripps will get you there, even when your destination is 6000 miles away.

We frankly believe this is the finest small marine engine built—but it isn't too good for the work boat or commercial fishermen. Gives 7 1/2 H.P. at 400 R.P.M. and 18 H.P. at 1000 R.P.M. The D-2 has all the refinements of our larger motors and offers the utmost quality you can find in any motor of its power.

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SCRIPPS MOTOR CO.

5819 Lincoln Avenue Detroit, Michigan



The 35' Red Bank cruiser "Irene," owned by Mr. James Montgomery of Stonybrook, Long Island, producer of the popular musical show "Irene," E-6 Scripps furnishes the power to the tune of 18 miles per hour



Another famous Scripps powered boat, "Nepenthe II", in which Van Campen Heilner of Philadelphia, author and associate editor of Field and Stream, made a 4,000 mile cruise through the West Indies and the Caribbean to the coast of South America. A 47 footer designed by Murray Watts and powered with two E-6

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may be incorporated in your Racine Wis Runabout. Order now, and when the season is on you can enjoy all the little things that go so far toward making motor boating a real pleasure.

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Racine Wis Runabouts are fast, roomy, easily handled, medium draft, built in three lengths—19, 22½ and 25 ft.

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RACINE BOAT COMPANY, 1809 Holborn St., RACINE, WISCONSIN

CADYFORD

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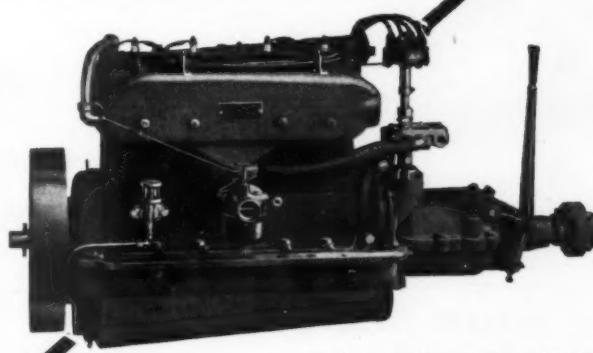
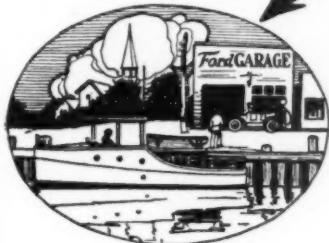
The Cadyford is a 4 cylinder 4 cycle marine motor which offers the same superior advantages on the water as the most popular automobile offers on land. It is a real marine motor for real boats and hard service.

The big feature is that all moving parts can be duplicated at any Ford garage. Ford parts are carried in stock by dealers, agents and service stations, throughout the civilized world. You can secure these parts quickly and inexpensively wherever you are.

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SERVICE

We have solved the problem of efficient Marine Motor SERVICE, regardless of where the boat is operated—service wherein new parts are needed and supplied quickly—that's the kind of SERVICE we give. No delays, no misfits, whatever part fits a Ford engine will fit the "Cadyford." The constituent parts are the best and most carefully made that modern manufacturing methods and skilled mechanics can produce.



use is an endorsement as the finest marine power plant on the market.

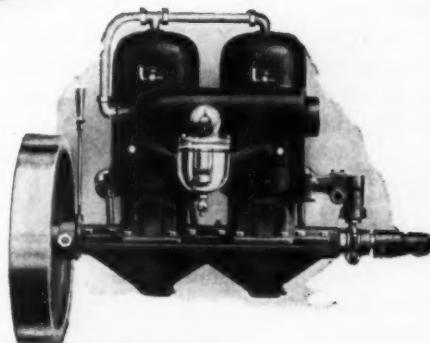
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This 4-cycle Cadyford is being used by the Consolidated Shipbuilding Corporation in their popular new 34-foot "Florida Play Boats." A Cadyford is used in each boat in addition to the big high speed engine and is connected to a feathering propeller. This gives a speed of 6 miles per hour on the small engine alone, or a minimum trolling speed of 2 miles per hour, besides the safety factor of having two capable and independent power plants.

The selection of the Cadyford by Consolidated for this small marine power plant on

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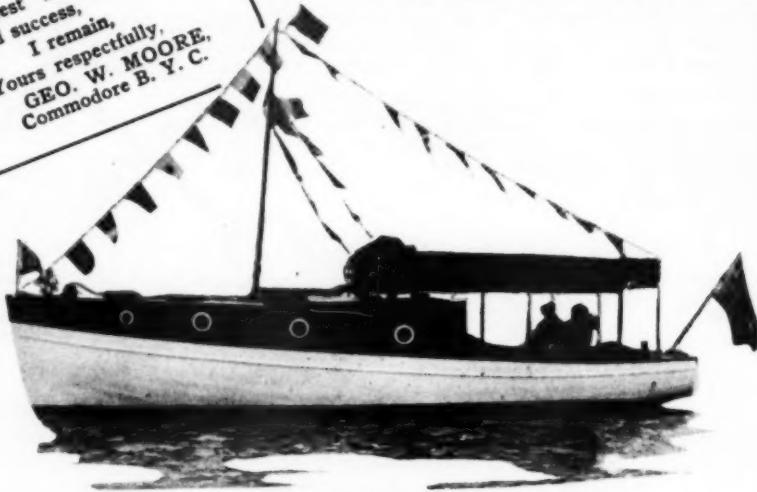
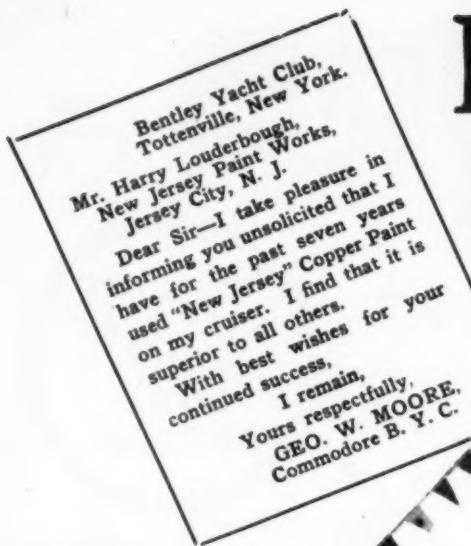
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Pioneer Marine Engine Manufacturers

ESTABLISHED 1883

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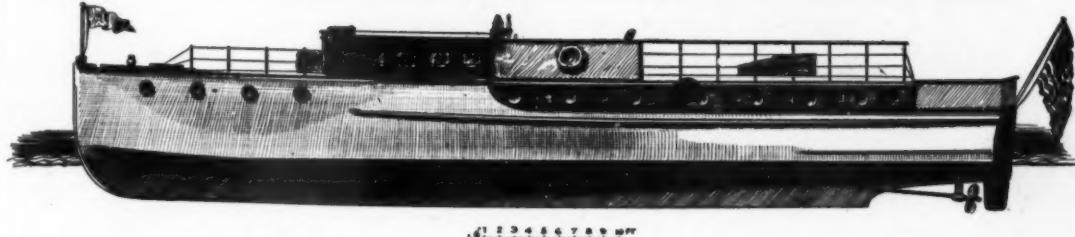
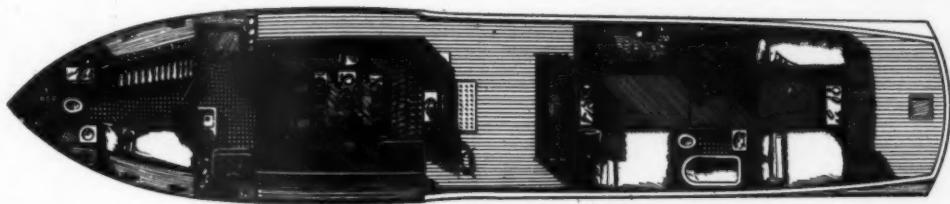
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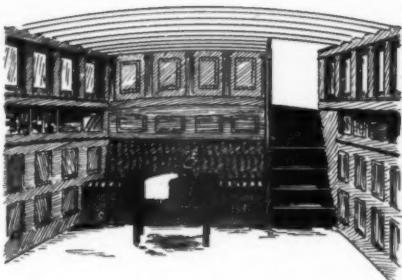
Advertising Index will be found on page 276

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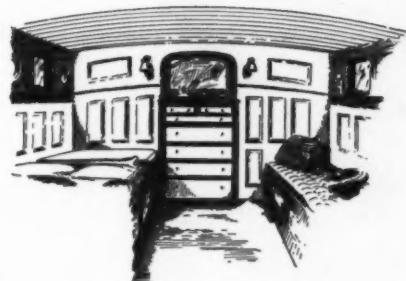
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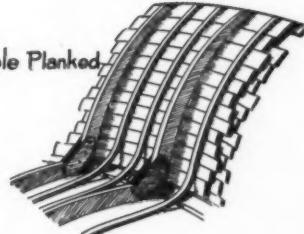
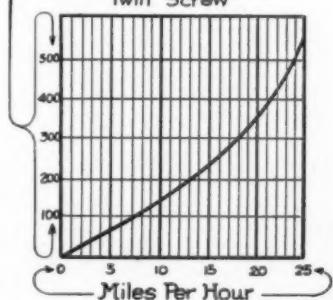


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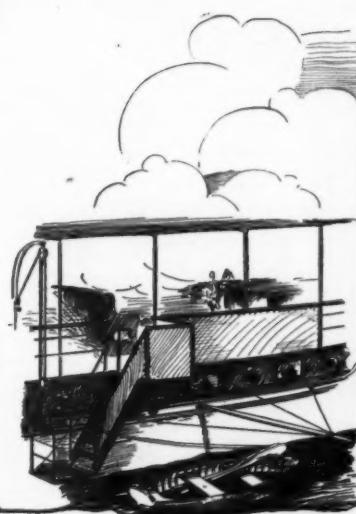


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Four Watertight Bulkheads
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Chain and Rope Style—Box View Horizontal-Single Acting

With an Andrade Windlass you can heave in on the chain, let it run free or stop it at any point—all by means of one lever—and without changing the position of the operator's hand. Heads work independently. The Windlass is of simple construction, nothing to get out of order, and very strongly made.

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"Sea Craft Suggestions and Supplies" solves those daily "puzzlers" that few know how to handle. Tells how to Box the Compass; what is Proper Ground Tackle; gives hints on Steering Gear, etc.; describes WC Dependable Marine Hardware; tells uses. Compiled from 75 years' experience in making marine fittings. 50c. prepaid.

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Nineteen Twenty-Four Marine Engines

(Continued from page 66)

Joseph Van Blerck Engine Corp., Plainfield, N. J.

Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
28	$5\frac{1}{2} \times 6$	2	4	800	1000
72	$5\frac{1}{2} \times 6$	4	4	1200	1500
106	$5\frac{1}{2} \times 6$	6	4	1200	1800
142	$5\frac{1}{2} \times 6$	8	4	1200	2287
94	$5\frac{1}{2} \times 6$	4	4	1500	1497
140	$5\frac{1}{2} \times 6$	6	4	1500	1890
187	$5\frac{1}{2} \times 6$	8	4	1500	2287

W-S-M Wilbur H. Young, New York, N. Y.

Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
A-4	47	$4\frac{1}{2} \times 6$	4	4	1000	1450
A-4R	57	$4\frac{1}{2} \times 6$	4	4	1400	1350

Car Wood, Inc., Detroit, Mich.

Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
300	$6\frac{1}{2} \times 7.09$	6	4	1500	
450	$5\frac{1}{2} \times 7$	12	4	1800	1300

Winton Engine Works, Cleveland, Ohio

Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
W-6	80	$6\frac{1}{2} \times 9$	6	4	500	5900
W-29	200	$6\frac{1}{2} \times 9$	8	4	900	5000
105	100	$6\frac{1}{2} \times 8\frac{1}{2}$	6	4	600	7700
W-5	125	8×11	6	4	450	10000
11	220	$9\frac{1}{2} \times 14$	6	4	400	19000
54-A	150	$7\frac{1}{2} \times 11$	6	4	450	23000
W-35	225	11×14	6	4	250	44000
W-24A	350	12×15	16	4	225	64000
W-40	450	12×15	16	4	225	90000

Wisconsin Motor Mfg. Co., Milwaukee, Wis.

Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
40	4×5	4	4	1400	850
50	$3\frac{1}{2} \times 5$	6	4	1700	1050
48	$4\frac{1}{2} \times 5\frac{1}{2}$	4	4	1200	890

Outboard Motor Manufacturers

Callie Perfection Motor Co., Detroit, Mich.

Model	Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
Liberty	2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	700	60
Liberty Twin	4	2×2	2	2	1200	48
5-Speed	2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	700	71
Neptune	2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	700	61

Elto Outboard Motor Co., Milwaukee, Wis.

Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
3	$2\frac{1}{2} \times 2$	2	2	1400	50

Evinrude Motor Co., Milwaukee, Wis.

Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	850	72
2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	850	80
2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	850	70
4	$2\frac{1}{2} \times 2\frac{1}{2}$	2	2	1200	80
2	$2 \times 1\frac{1}{2}$	2	2	2100	40
2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	850	53
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Johnson Motor Co., South Bend, Ind.

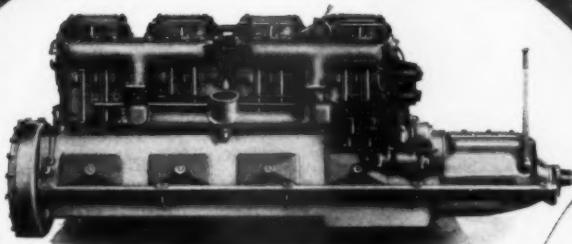
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
2	$2 \times 1\frac{1}{2}$	2	2	2100	35

Lockwood-Ash Motor Co., Jackson, Mich.

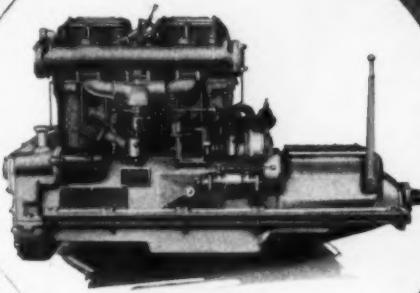
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	700	65

Spinaway Boat Motor Co., Freeport, Ill.

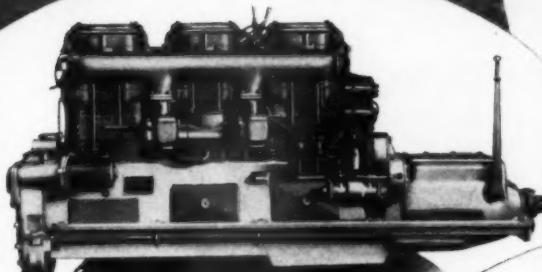
Horse Power	Bore and Stroke	No. of Cylinders	Cycle	R. P. M.	Weight
2	$2\frac{1}{2} \times 2\frac{1}{2}$	1	2	1400	46



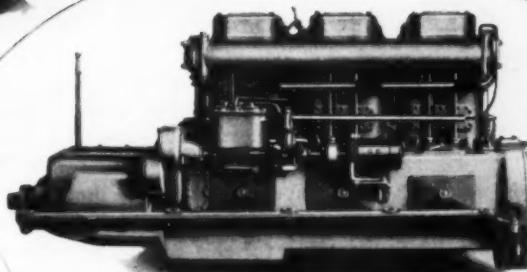
Sterling Dolphin 8 cyl. 250-300 H.P.
1250-1550 R. P. M.



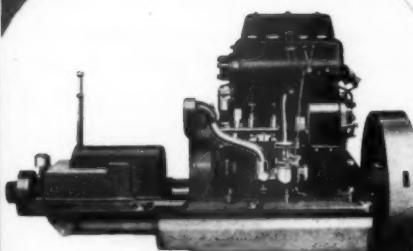
Sterling Trident 4 cyl. 30-63 H.P.
400-800 R. P. M.



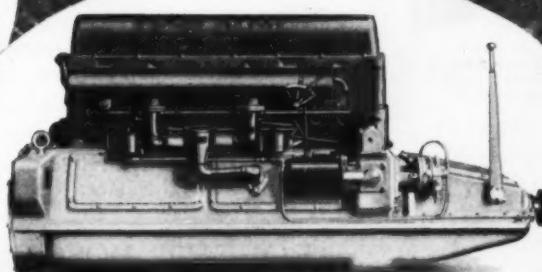
Sterling Dolphin Special 6 cyl. 275-300 H.P.
1750-1950 R. P. M.



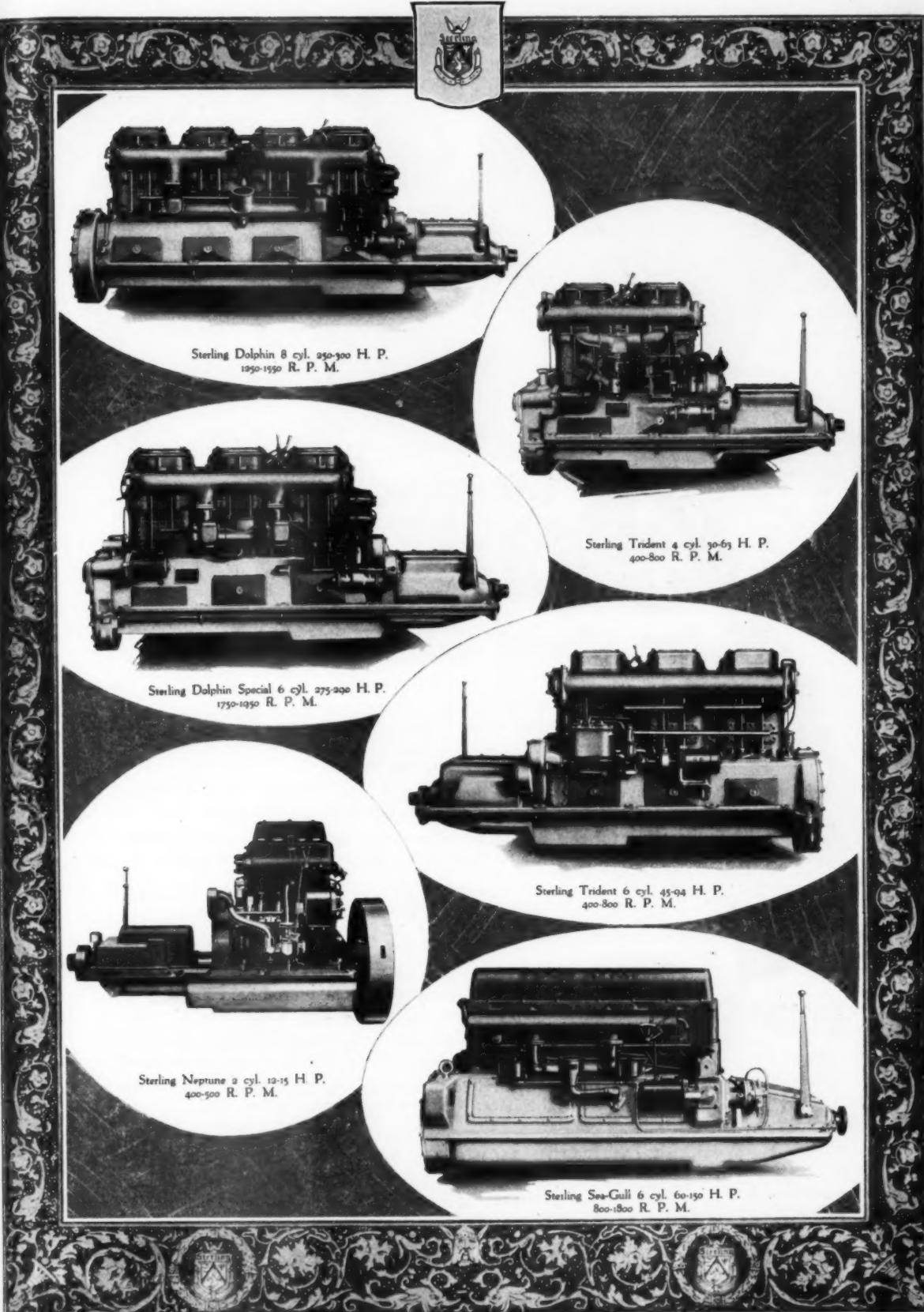
Sterling Trident 6 cyl. 45-94 H.P.
400-800 R. P. M.



Sterling Neptune 2 cyl. 12-15 H.P.
400-500 R. P. M.



Sterling Sea-Gull 6 cyl. 60-150 H.P.
800-1800 R. P. M.



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Robert Bosch
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Experienced motor boat owners know exactly what to expect from Robert Bosch Magnets, Spark Plugs and Horns.

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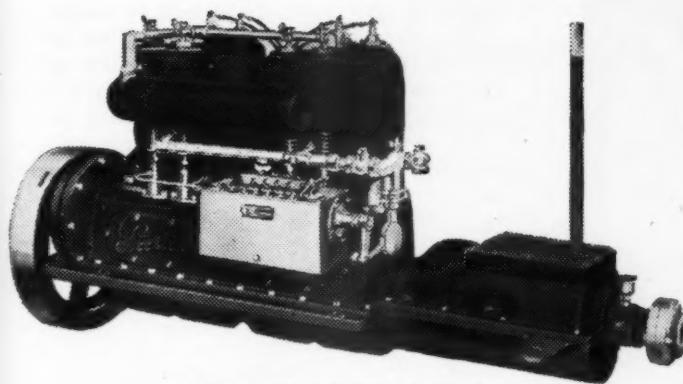
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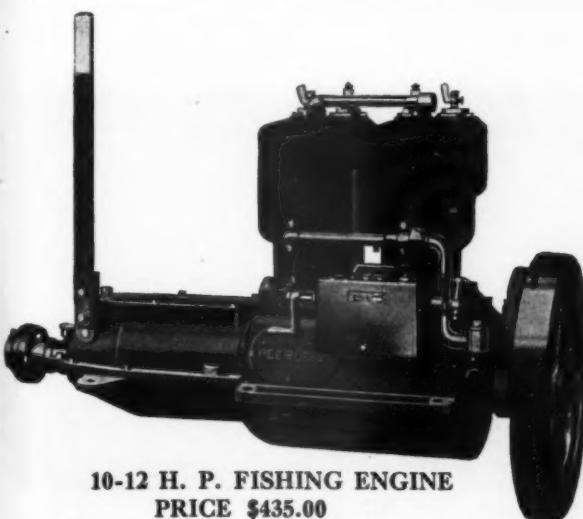
PEERLESS

MEDIUM DUTY



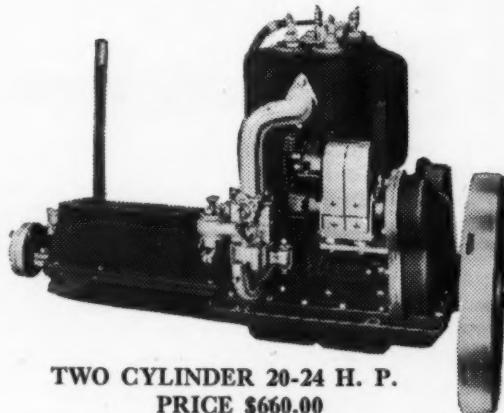
FOUR CYLINDER 40-50 H. P.
PRICE \$1,195.00

The Peerless 20-24 HP motor is of the same general design as the 40-50 HP and is built in the same high class manner throughout. This motor has been installed in many work boats of various types and also in the smaller fish tugs. It has ample power to handle the large propeller wheel which is necessary for satisfactory and economical towing and work boat service. It is very flexible in speed control and reliable under the most trying conditions, also economical in the matter of fuel consumption and up-keep.



10-12 H. P. FISHING ENGINE
PRICE \$435.00

The Peerless 40-50 HP motor is in a class entirely by itself and is of clean cut, compact design, built in the best possible manner and equipped with reliable accessories. This motor has no superior at any price and for the past ten years has been giving unfailing, reliable and economical service in hundreds of boats in all parts of the world. A feature not to be overlooked by the prospective purchaser, is the fact that this engine has sufficient bore and stroke to develop its rated horse power at moderate speeds. This is necessary in the heavier types of pleasure and work boats.



TWO CYLINDER 20-24 H. P.
PRICE \$660.00

The 10-12 H.P. FISHING ENGINE is designed to meet the demand for a reliable motor to be used for fishing and work boats. The large number of satisfied users of this motor is ample evidence that it is just what its name implies, truly a fishing and work boat motor. It is very substantially constructed, having a large three-bearing crank shaft and exceptionally long bearings. All working parts are of proper design and heavy enough to stand up under all conditions. By careful design, the total weight of the motor is not excessive and it can be installed in boats up to 32 ft. in length. Many of these motors are now being used for towing heavy loads for long periods without stopping. They perform year after year with practically no cost for up-keep.

PEERLESS

HIGH SPEED



BABY JUNE

MISS PEERLESS is a 20x6 ft. single step hydroplane, equipped with an eight cylinder V type Peerless high speed motor. This boat has won the George Leary trophy for two consecutive years. This trophy is a championship of America for hydroplanes equipped with motors of 1,100 cu. in. or under. Miss Peerless is capable of a speed above 60 miles per hour in smooth water.



MISS PEERLESS

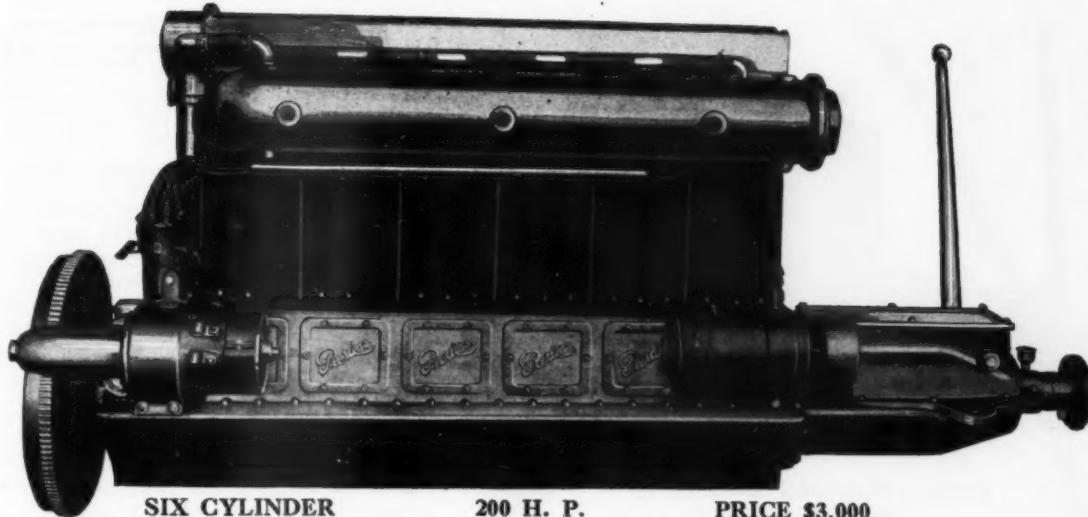
MISS MARY is a 25' x 5'2" Hacker designed and built runabout. It is heavily built and also a very good sea boat. Equipped with a 625 cu. in. six-cylinder high speed Peerless motor. Although completed too late for the races at Detroit, it made a remarkable showing at the Buffalo International regatta and won first place in the second and third heats of the 625 cu. in. Interstate Trophy race, thereby giving it second place in the series. Miss Mary is equipped with a 17 x 27 three blade Hyde wheel, turning at 2,250 R.P.M., giving the boat a speed of practically 50 miles per hour.



MISS MARY

PEERLESS

HIGH SPEED

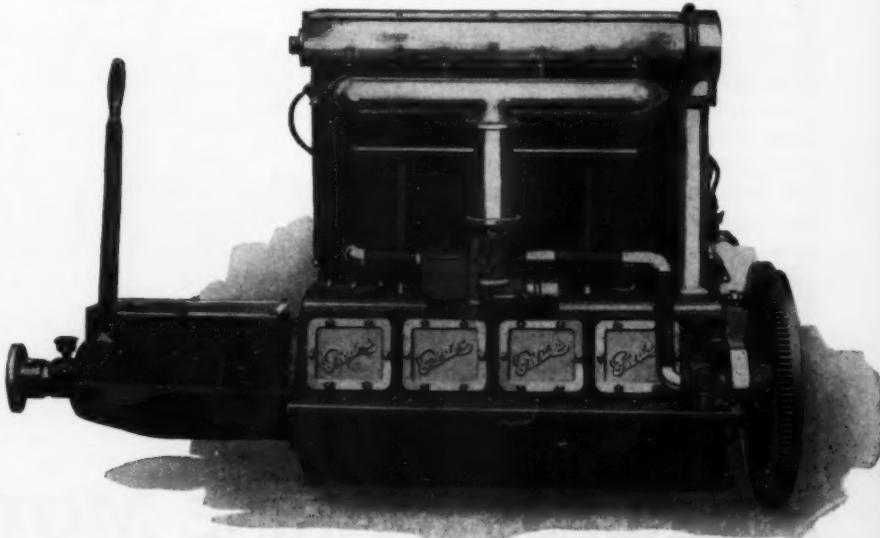


**SIX CYLINDER
WT. 1,000 LBS.**

NEW FACTORY. Increased manufacturing facilities, made possible by the addition of a new plant devoted to the exclusive manufacture of Peerless high speed motors, will enable us to make delivery from stock on the four and six-cylinder sizes. By the use of the most modern equipment and a larger output, we will be able to maintain the exceptionally low prices of the

Peerless high speed line. As in the past, nothing, but the best of materials and workmanship will be employed, and, when better materials are developed, they will be used in the construction of these motors.

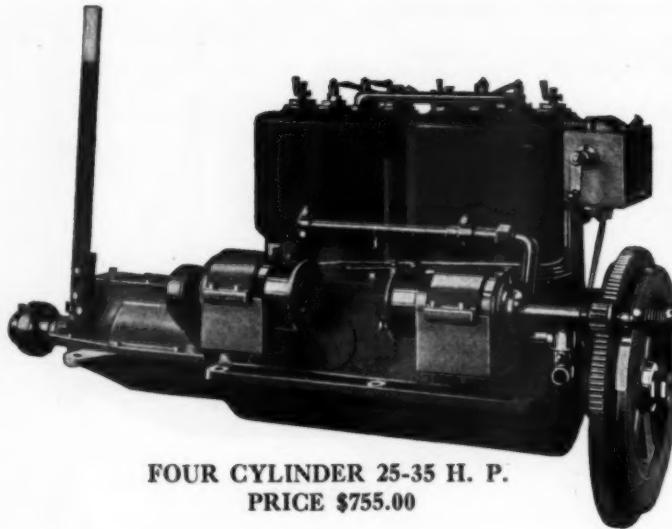
The four and six cylinder high speed Peerless engines have been developed in actual boat service during the past four years and wherever installed are giving universal satisfaction. Although designed primarily for runabout service, a number of these motors have been installed in cruising boats with perfect results. We take pride in pointing out the fact that although these motors have been in operation in all types of boats and handled by the ordinary operator, they have gone through two years without a service case. They are lightest in weight, strongest in construction, most accessible, quiet in operation, economical in fuel and oil consumption, and do not require a mechanician to keep them running. They are absolutely the cheapest motor for horse power on the market. Simplicity in design, low overhead, and modern equipment, enable us to build these *highest grade* motors at popular prices.



FOUR CYLINDER **125 H. P.** **PRICE \$2,000**
WT. 800 LBS. **R. P. M. 1,700**

PEERLESS

MEDIUM DUTY



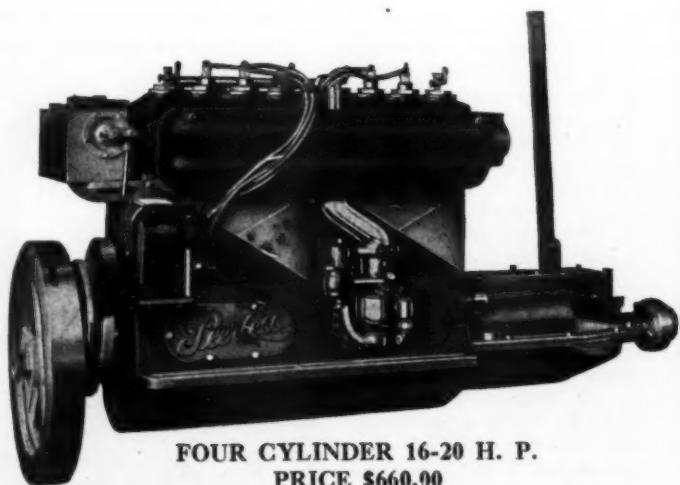
FOUR CYLINDER 25-35 H. P.
PRICE \$755.00

The 16-20 H.P. MOTOR was the first of the Peerless line to be placed on the market. This motor was also the first high class four cycle motor that was sold at a popular price. It immediately found a large sale. Early in its history, the stroke was increased from five to six inches and the entire engine built heavier. This makes an ideal motor for both cruising and runabout service. It has no equal in regard to reliable, economical and satisfactory performance, and, as in its early days, it is still one of the most popular Peerless models. It is installed in cruising boats ranging from 28 to 40 ft. in length and can be operated at speeds from 400 to 1,000 R.P.M., thereby giving a wide range of service. The motor is equipped with high class accessories throughout. It can be supplied with two unit starting and lighting system, if desired, at a small additional cost.

The 25-35 H.P. MOTOR makes a very suitable power plant in boats ranging from a 25 ft. runabout to 45 ft. cruisers. This motor has a bore and stroke of 5x6 in. and is capable of handling a standard three blade propeller wheel as large as 24 in. in diameter. It is especially desirable for cruising boats ranging from 32 to 45 ft. in length and users of this engine are very enthusiastic as to the results they obtain. Like the other Peerless motors, it is of sturdy design and construction and very compact. It is quiet in operation and flexible in speed control. This engine is complete with first class accessories throughout. A two unit electric starting and lighting system can be supplied with this motor.

IMPORTANT CHANGE

We wish to announce that we have made a change in the lubricating system of the 25-35 and 16-20 H. P. models. The mechanical force feed system has been discontinued and a positive circulating system adopted in its place. This improvement is offered only after exhaustive tests which give entirely satisfactory results.



FOUR CYLINDER 16-20 H. P.
PRICE \$660.00

PEERLESS MARINE MOTOR CORP.
2160 NIAGARA ST. BUFFALO, N. Y., U. S. A.

Advertising Index will be found on page 276

The Whirlpool Mixture

Saves Fuel
Increases Power

THE X-ray view below tells the story. That is the open secret of the Ensign carburetor—the secret of its fuel economy, its power-adding, its all around efficiency.

The whirlpool action in the mixing chamber breaks up the particles of fuel and mixes it with the air so thoroughly that, by the time the mixture reaches the cylinders, it is a dry gas that burns clean to the last atom. This perfect combustion not only saves fuel, increases power and revolutions, and makes easier starting, but it decreases carbon deposit, keeps the spark plugs and valves clean, and avoids the dangerous dilution of your lubricant by unburned fuel.

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Recommended by the manufacturers of
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Ensign Carburetors are made for *Kerosene, Gas Oil and Distillate* as well as gasoline. We have the right carburetor for your engine, whether it is small or large, fast or slow speed.

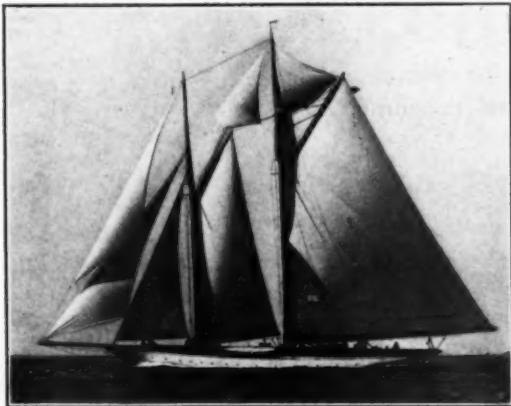
Write today for full details giving name of your engine, number of cylinders, carburetor size and kind of fuel you want to use. An Ensign Carburetor will quickly save its cost. Let us prove it for you.

Marine Engine Manufacturers

We want to cooperate with you in solving your carburetor problems. A trial is all we ask.

Ensign Carburetor Co.
3108 South Michigan Ave., Chicago

CUP DEFENDER VARNISHES



“ENCHANTRESS”

Winner of Astor Cup 1923.

From A. B. Smith,
Master Schooner Yacht “Enchantress.”

I have used your varnishes for the past twenty years in sloop yacht “Huron,” schooner “Elsamarie,” steam yacht “Suspense,” schooner “Wayward,” schooner “Emerald,” yawl “Vigilant” and schooner “Enchantress.” They have always proved to be all that good varnishes should be, and I will continue to use them.

“MISS BROADWAY” AND “MISS NEW YORK” PROVED THE VALUE OF SMITH’S FRICTIONLESS RACING BOTTOM (Copper Bronze Finish)

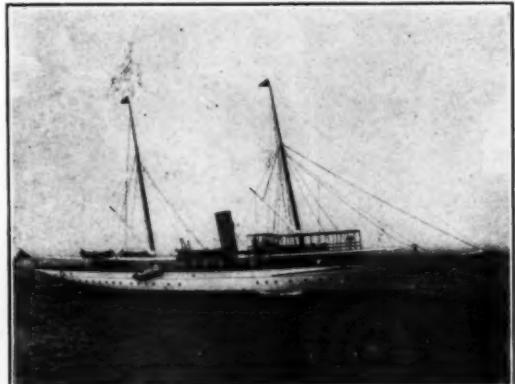
Smith’s Yacht Bottom Green—A bottom paint recently placed on the market as the result of years of experiment by R. R. Adams. We offer this new product with the full belief that it is more non-fouling than any bottom paint ever put on the market.

Smith’s “Yacht Deck Buff”—A deck paint which will not turn *chalky* even in southern waters—made from hard fossil gums—contains no rosin or ester gum.

“HIAWATHA”

From Frank Johnson,
Master Steam Yacht “Hiawatha.”

It gives me great pleasure to state that during the past fifteen years and more I have used your inside and outside varnishes exclusively with the greatest of satisfaction, and will surely continue to do so.



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Jan. 4th to 12th.

Rochester Boat Works, Inc.



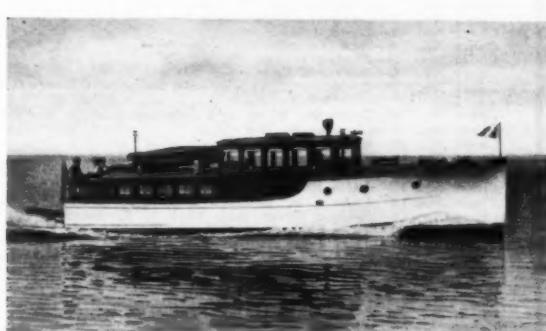
33-foot cruiser



36-foot cruiser



40-foot cruiser



45-foot cruiser



50-foot cruiser



55-foot cruiser

The above photographs show the various sizes of standardized Rochester Cruisers. These, however, are built in various types of open or enclosed bridge or in day cruisers. State size of interest, type of cruiser, speed required and write us for complete information.

Originators of the Standardized Enclosed Bridge Cruiser

ROCHESTER BOAT WORKS, Inc.

10 Charlotte Station

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Rochester, N. Y.

Another New Book

Where To Cruise

By F. W. Horenburger, C. E.

2nd Edition of MoToR BoatinG's Book of Motor Boatmen's Charts with Valuable Cruising Data

34 detail charts of the eastern seaboard, sounds, bays and harbors, covering the entire Atlantic coast from Maine to the Gulf of Mexico.

9 detail charts of rivers, inland lakes and canals.

8 detail charts of the Great Lakes.

51 charts in all, attractively and durably bound in a book measuring 8 1/2 x 11 1/2 inches.

Chart No. 1—Western End of Long Island Sound
 Chart No. 2—Eastern End of Long Island Sound
 Chart No. 3—Block Island Sound
 Chart No. 4—New York Harbor
 Chart No. 5—Boston Harbor
 Chart No. 6—Buzzards Bay
 Chart No. 7—Block Island to Vineyard Sound and Narragansett Bay
 Chart No. 8—Delaware River and Bay
 Chart No. 9—Chesapeake Bay—Part 1
 Chart No. 10—Maine Coast
 Chart No. 11—Hudson River, Kingston to Albany
 Chart No. 12—Chesapeake Bay—Part 2
 Chart No. 13—Lake Erie, Eastern End—Part 1
 Chart No. 14—Lake Erie, Western End—Part 2
 Chart No. 15—Hudson River, New York to Kingston
 Chart No. 16—Lake Champlain, Whitehall to Rouses Point
 Chart No. 17—The New York State Barge Canal System
 Chart No. 18—Massachusetts Coast, Scituate to Newburyport
 Chart No. 19—Massachusetts Coast, Newburyport to Cape Elizabeth
 Chart No. 20—Cape Cod Bay, Massachusetts
 Chart No. 21—Coast of Maine, Monhegan to Isle Au Haut
 Chart No. 22—Chesapeake Bay, Cove Point to Smith Point—Part 3
 Chart No. 23—Biscayne Bay, Florida
 Chart No. 24—Thousand Islands, Wolfe to Grenadier Island
 Chart No. 25—Delaware River, Trenton to Philadelphia
 Chart No. 26—Delaware River Philadelphia to Smyrna
 Chart No. 27—New Jersey Coast, Cape May to Little Egg Inlet
 Chart No. 28—New Jersey Coast, Little Egg Inlet to Bayhead
 Chart No. 29—New Jersey Coast, Bay Head to New York Harbor
 Chart No. 30—Chesapeake Bay, Smith Point to Cape Charles
 Chart No. 31—Potomac River, Entrance to Lower Cedar Point
 Chart No. 32—York and James Rivers
 Chart No. 33—Delaware Coast, Cape Henlopen to Chincoteague Inlet
 Chart No. 34—Virginia Coast, Chincoteague Inlet to Cape Charles
 Chart No. 35—Virginia Coast, Cape Henry to Albemarle Sound
 Chart No. 36—Albemarle Sound, North Carolina
 Chart No. 37—Pamlico Sound, North Carolina

Chart No. 38—North Carolina Coast, Core Sound to New River Inlet
 Chart No. 39—Carolina Coast, From Cape Fear to Winyah Bay
 Chart No. 40—South Carolina Coast—From Winyah Bay to St. Helena Sound
 Chart No. 41—Georgia Coast—From St. Helena to Doboy Sound
 Chart No. 42—Lake Michigan, Southern Part
 Chart No. 43—Lake Michigan, Northern Part
 Chart No. 44—Lakes Michigan and Huron
 Chart No. 45—Lake Huron
 Chart No. 46—Coast of Georgia
 Chart No. 47—Florida Coast
 Chart No. 48—Florida—Cape Canaveral to Miami
 Chart No. 49—Lake Ontario—Western Part
 Chart No. 50—Lake Ontario—Eastern Part
 Chart No. 51—Nantucket Sound

THE most suitable courses from all principal ports and harbors are given on these charts, as well as magnetic courses and bearings, distances in statute miles, all principal lights, buoys, etc. All charts are drawn to scale. They have proven invaluable to motor boatmen while cruising or planning a cruise.

Much other cruising data is given in the book, such as where to purchase the various government charts and publications, notes on how to use charts, the characteristics of lights and other major aids to navigation, information as to fuel and supply stations, etc., etc.

A number of suggestions for interesting cruises and several complete cruises are outlined as follows:

Cruise No. 1 New York to Albany
 Cruise No. 2 Albany to Buffalo
 Cruise No. 3 Albany to Thousand Islands via Champlain Canal, Lake Champlain, Montreal and St. Lawrence
 Cruise No. 4 New York to Thousand Islands via Barge Canal
 Cruise No. 5 New York to Philadelphia
 Cruise No. 6 Buffalo to Detroit
 Cruise No. 7 New York to Florida
 Cruise No. 8 Miami, Florida, to New Orleans

No motor boatman should be without a copy of *Where to Cruise* (Vol. 6) MoToR BoatinG Ideal Series.

Price \$2.00 per copy

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You will find this book more enjoyable and easier to understand than any text book you ever read. You will find it correct and authoritative because it has been prepared by experts with years of boating experience and every necessary reference at hand.

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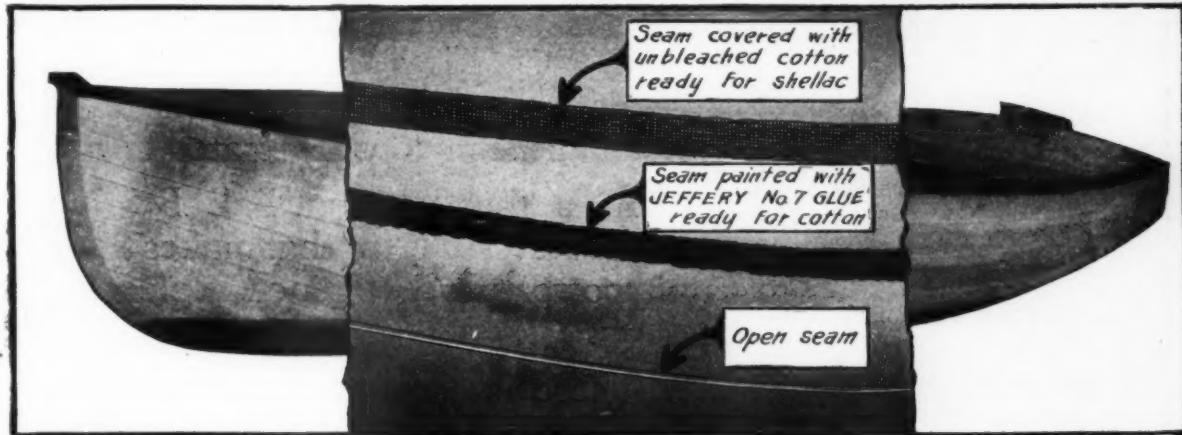
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Put your **LEAK** problems up to us—
we will help you **STOP** them

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JEFFERY'S Waterproof Marine Glue



Above illustration shows one way to stop leaks. The seams are first coated with Jeffery's No. 7 Marine Glue—then a strip of unbleached cotton fabric is applied and ironed into the glue with a warm flat iron as shown on the top seam. The cotton is then given a coat of shellac and painted. You can do the job so neatly that the patch can hardly be detected—by simply following the instructions in our booklet.

We however believe and earnestly recommend that if a more permanent result is desired, the entire surface be covered with fabric, laid in our Jeffery's No. 7 Black soft quality Marine Glue. This treatment will insure a boat with a coat of paint once a year being absolutely watertight indefinitely. **Put your leak troubles up to us—we will help you stop them.**

Jeffery's Waterproof Marine Glue in all the various grades is for sale by all Yacht, Boat and Canoe Supply Houses, Hardware, Paint and Oil and Sporting Goods Dealers.

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152 Kneeland St. Boston, Mass.

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THE JOHNSON MARINE REVERSE GEAR

Makes a Unit Power Plant Out Of Any Small Marine Motor

The Johnson Gear contains gearing and shafting of alloy steel and the heart of this gear is the well known Johnson Friction Clutch, and ball bearings of high quality.

A combination that users of reverse gears are proud of when installed in their boats.

In the building of the Johnson Gear quality has the first consideration, and price is the second.

THE HIGHEST PRICE GEAR ON THE MARKET

It Is Worth What It Cost
—Ask Any Owner

3 HORSEPOWER MODEL "NEW WAY"



Courtesy, The New-Way Motor Co., Lansing, Mich.

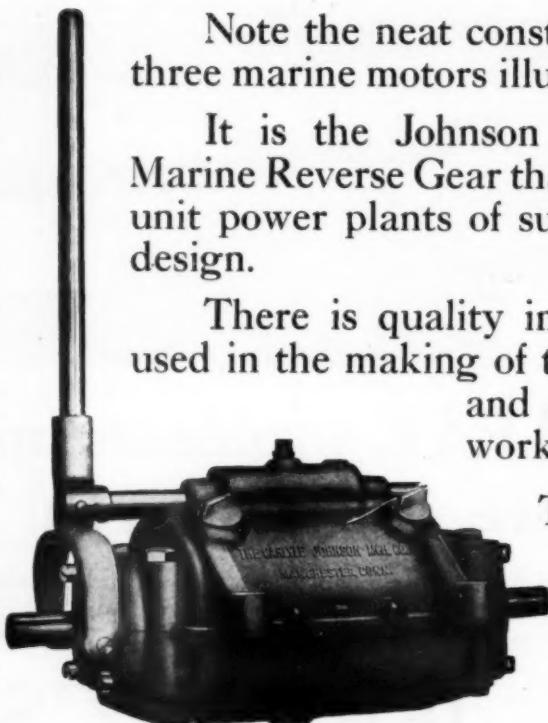
Note the neat construction of the three marine motors illustrated below.

It is the Johnson Bail Bearing Marine Reverse Gear that makes these unit power plants of such a pleasing design.

There is quality in the material used in the making of these products and quality in the workmanship.

There is also the reputation of the manufacturers of these motors that

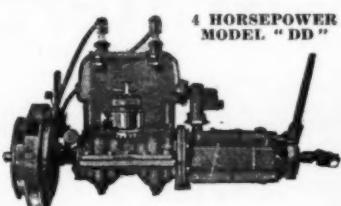
the user is concerned about.



MODEL "F" REVERSE GEAR

Motor Manufacturers—Let us show you how simple it is to make a unit power plant out of your motor with a Johnson Gear.

Boat Owners—The Johnson Gear is easily installed in your boat. They give satisfactory service.



Courtesy, Evinrude Motor Co., Milwaukee, Wis.

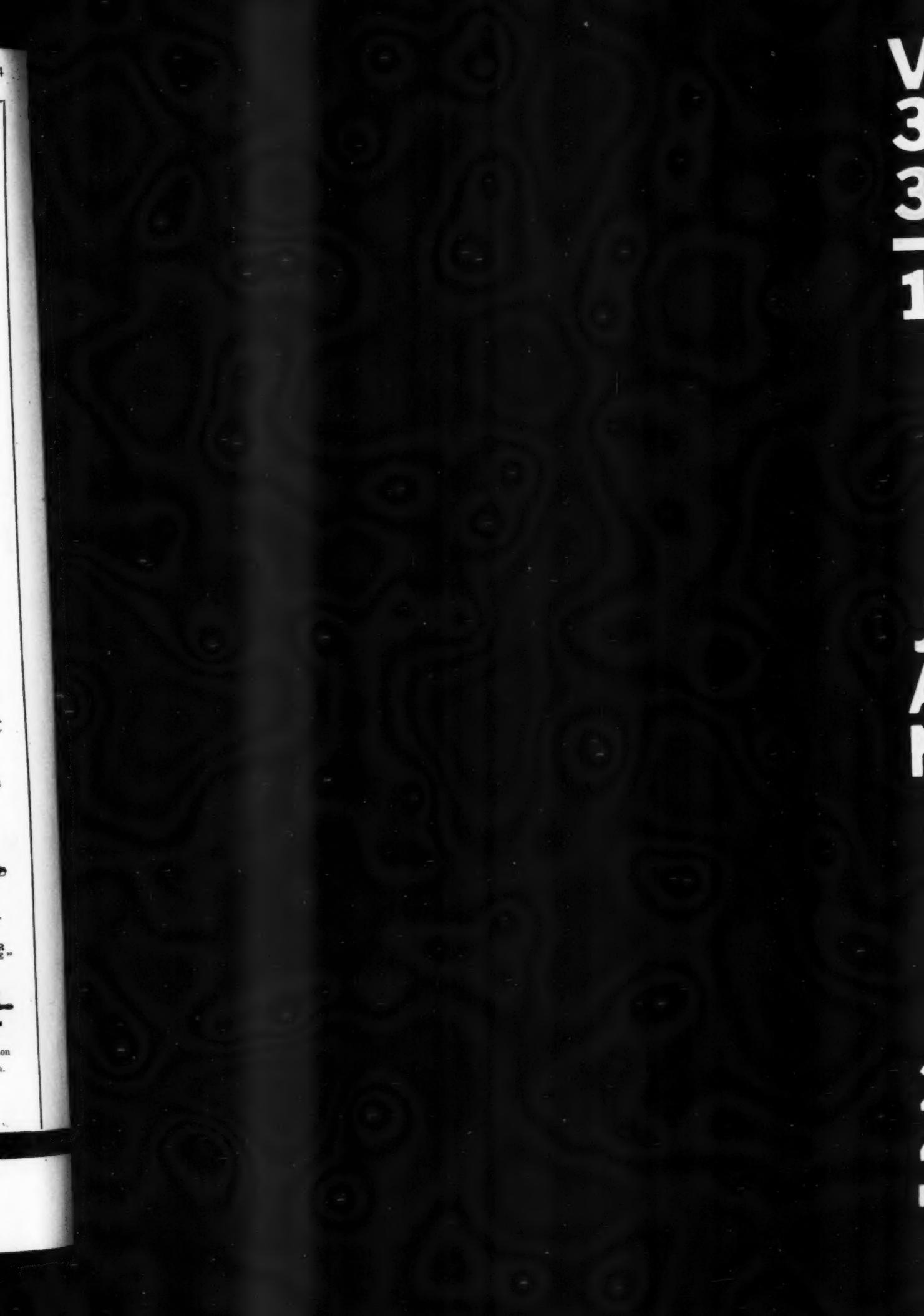
5 HORSEPOWER MODEL "BUD-E"



The Carlyle Johnson Machine Co., Manchester, Conn.

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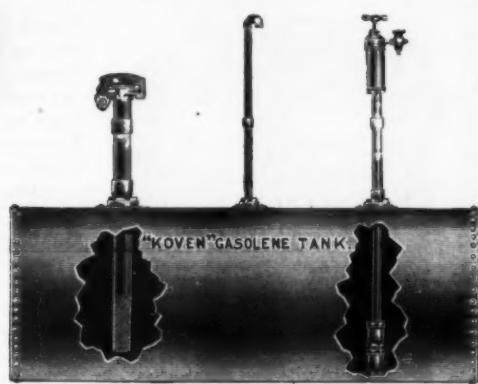
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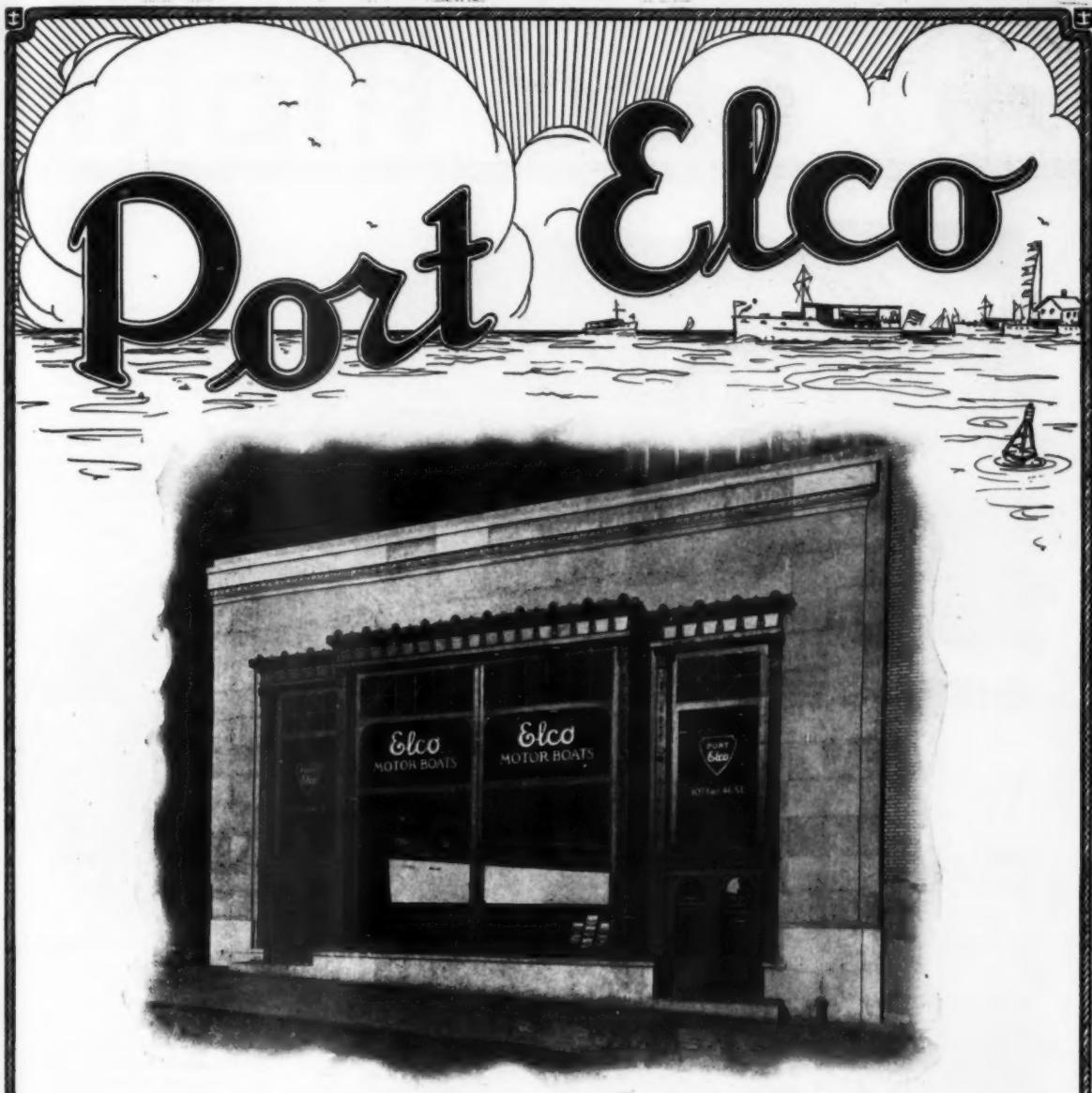
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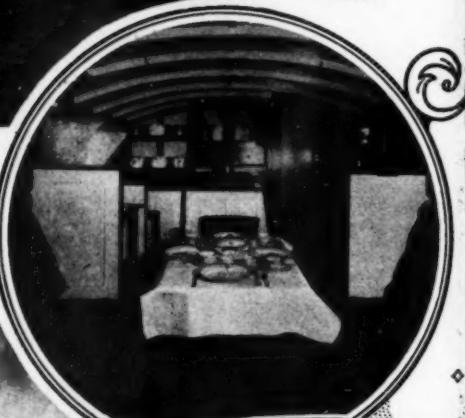


Elco Motor

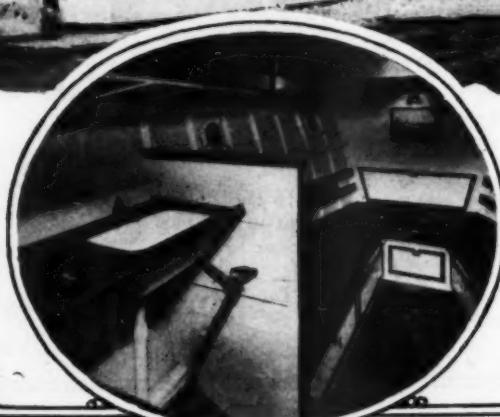
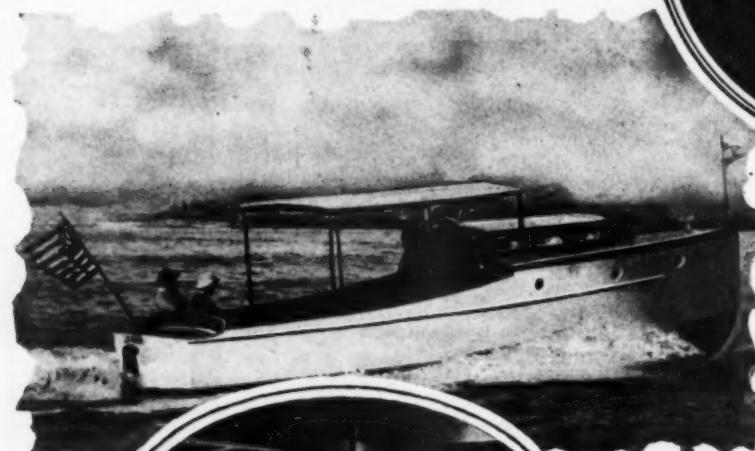


Looking aft in the Cruisette's cabin—it is dinner-time on the little "Home Afloat!"

Elco Cruisette—Series 24. Length 34 ft.; beam, 8 ft. 8 in.; draft, 2 ft. 9 in.; speed, 12 miles—42 H.P. Elco Engine



Elco Veedette—Series 24. Length, 30 ft. 11 in.; beam, 8 ft. 2 in.; draft, 2 ft. 1 in.; speed, 15 miles—42 H.P. Elco Engine



Looking for'd in cabin of Veedette. All conveniences and comforts—full head room

THE Elco standardized boats presented here will help the boat purchaser make a satisfactory selection, as there is an Elco motorboat for every service.

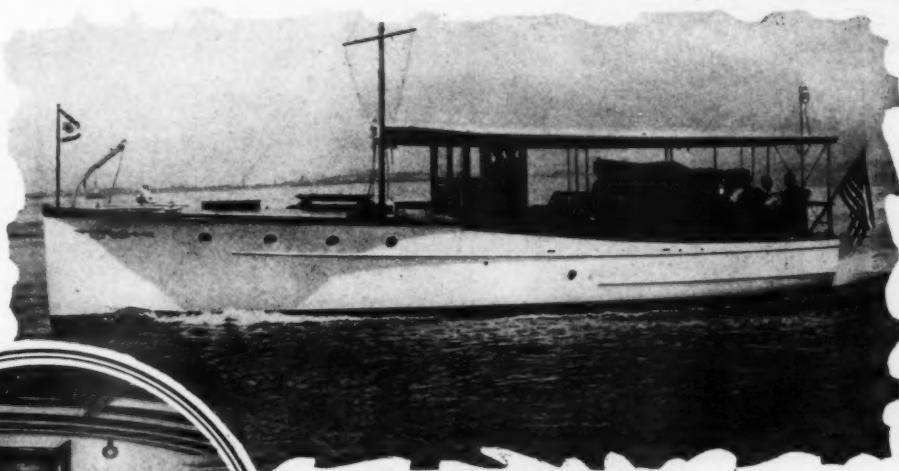
The Veedette offers the speed of a runabout and the protection of a cruiser. Its light draft, speed and roominess makes it suitable for short radius cruising and fishing trips.

The Cruisette is the most popular craft of its kind in the market. There are more people who own this moderate priced "home afloat" than any other cruiser designed. The Cruisette, in its lines and appointments, has all the necessities of a cruiser, with many of the comforts and refinements of larger and more expensive boats.

Boats Elco



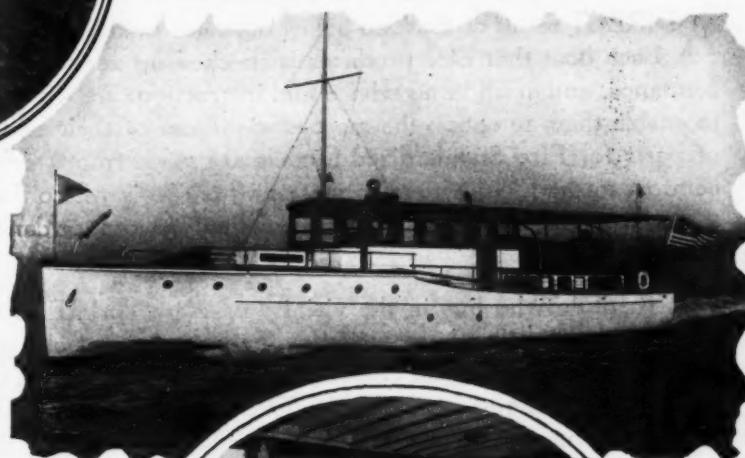
The forward cabin shown accommodates four. Private stateroom aft with all conveniences. Also good quarters for the crew



45 ft. Elco Cruiser—Series 24. Length, 45 ft.; beam, 11 ft. 4 in.; draft, 3 ft. 2 in.; speed, 11 miles—42 H.P. Elco Engine



Elco Deck House Cruiser—Series 24. Length, 56 ft. 6 in.; beam, 13 ft. 5 in.; draft, 3 ft. 2 in.; speed, 12 miles; twin screw, two 42 H.P. Elco Engines



FOR the man who finds the Cuisette a little too small for his needs, there is the 45-foot Cruiser with its extra sleeping accommodations, its greater deck space. It is a "home afloat" of a type that appeals to the man who can afford to invest a little more money in the refinements of his boat.

The Deck House Cruiser, 56 feet in length, driven by twin screws, is a miniature palace afloat, containing the luxurious appointments of larger yachts yet hardly more expensive to operate and maintain than an expensive automobile. The craft is sturdy and seaworthy, suitable for deep sea cruising and yet draws only 3 feet, permitting the navigation of any of the interlocking waterways and inland lakes throughout the continent.



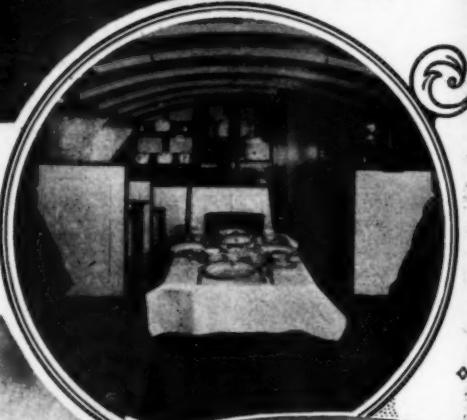


Elco Motor

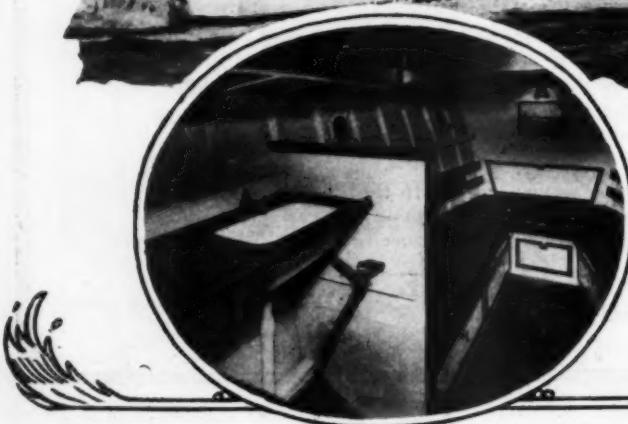
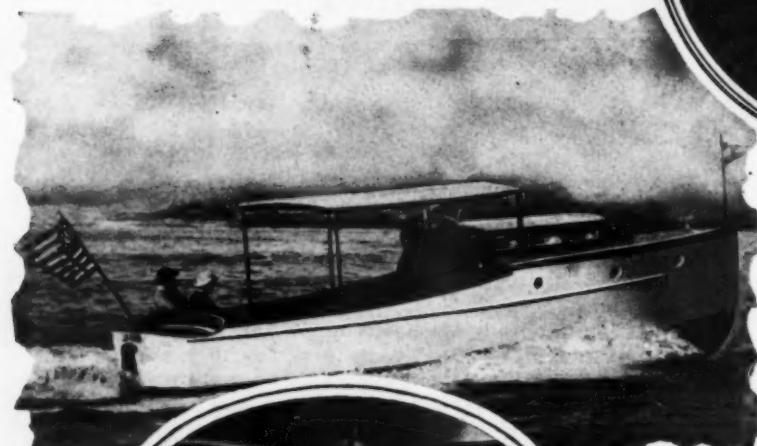


Elco Cruisette—Series 24. Length 34 ft.; beam, 8 ft. 8 in.; draft, 2 ft. 9 in.; speed, 12 miles—42 H.P. Elco Engine

Looking aft in the Cruisette's cabin—it is dinner-time on the little "Home Afloat!"



Elco Veedette—Series 24. Length, 30 ft. 11 in.; beam, 8 ft. 2 in.; draft, 2 ft. 1 in.; speed, 15 miles—42 H.P. Elco Engine



Looking forward in cabin of Veedette. All conveniences and comforts—full head room

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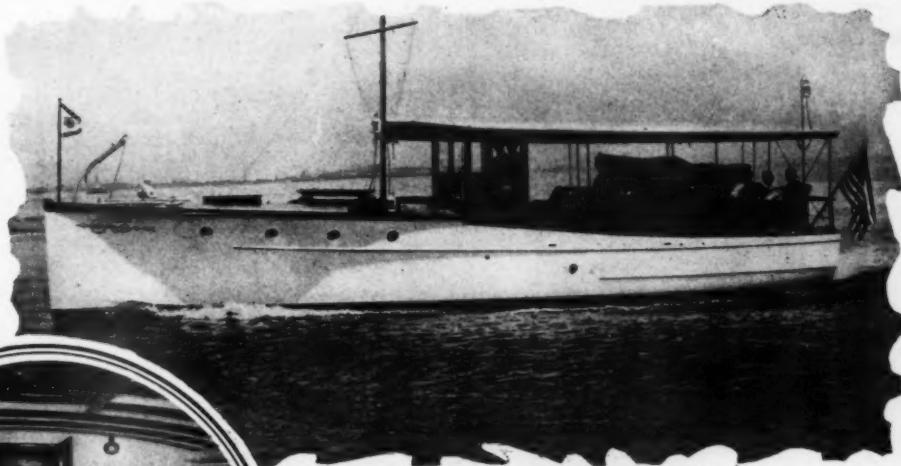
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Boats Elco



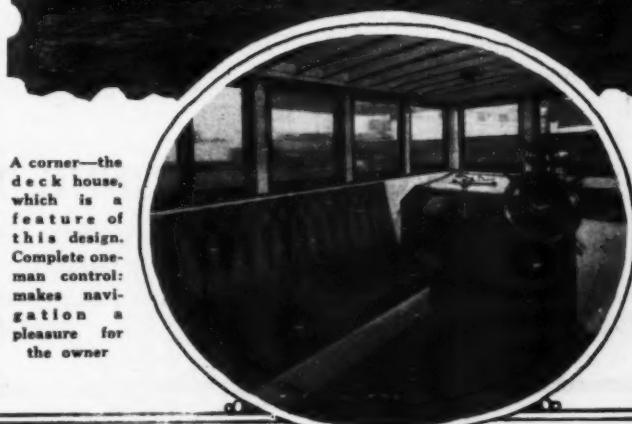
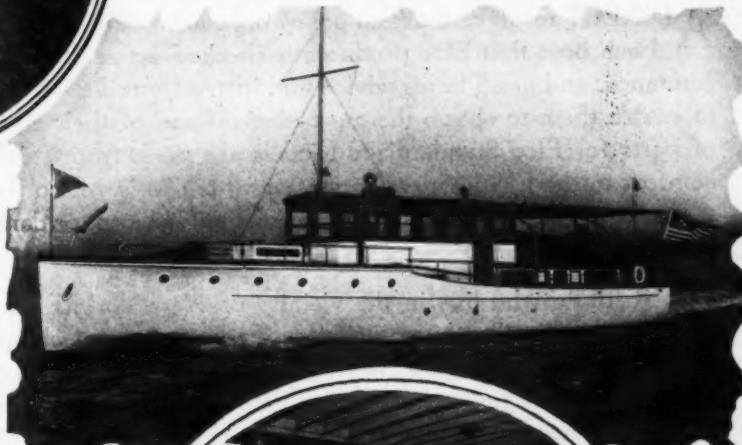
The forward cabin shown accommodates four. Private stateroom aft with all conveniences. Also good quarters for the crew



45 ft. Elco Cruiser—Series 24. Length, 45 ft.; beam, 11 ft. 4 in.; draft, 3 ft. 2 in.; speed, 11 miles—42 H.P. Elco Engine



Elco Deck House Cruiser—Series 24. Length, 56 ft. 6 in.; beam, 13 ft. 5 in.; draft, 3 ft. 2 in.; speed, 12 miles; twin screw, two 42 H.P. Elco Engines



A corner—the deck house, which is a feature of this design. Complete one-man control: makes navigation a pleasure for the owner

FOR the man who finds the Cruisette a little too small for his needs, there is the 45-foot Cruiser with its extra sleeping accommodations, its greater deck space. It is a "home afloat" of a type that appeals to the man who can afford to invest a little more money in the refinements of his boat.

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Boats in Winter Storage at the Elco Plant, Bayonne, N. J.

A DIRECT result of the Elco policy of motor boat standardization is Elco Service. Each boat that Elco produces is checked up zealously upon its record of performance, and at all times advice and instructions are willingly given to Elco owners to enable them to obtain the most efficient use of their craft. Replacement orders of parts for Elco Standardized Models are made from stock. This knowledge is a comfort to the Elco owner, no matter where he is. Elco Service adds materially to the resale value because quick replacements for worn, or damaged parts, add years to the life of a boat.

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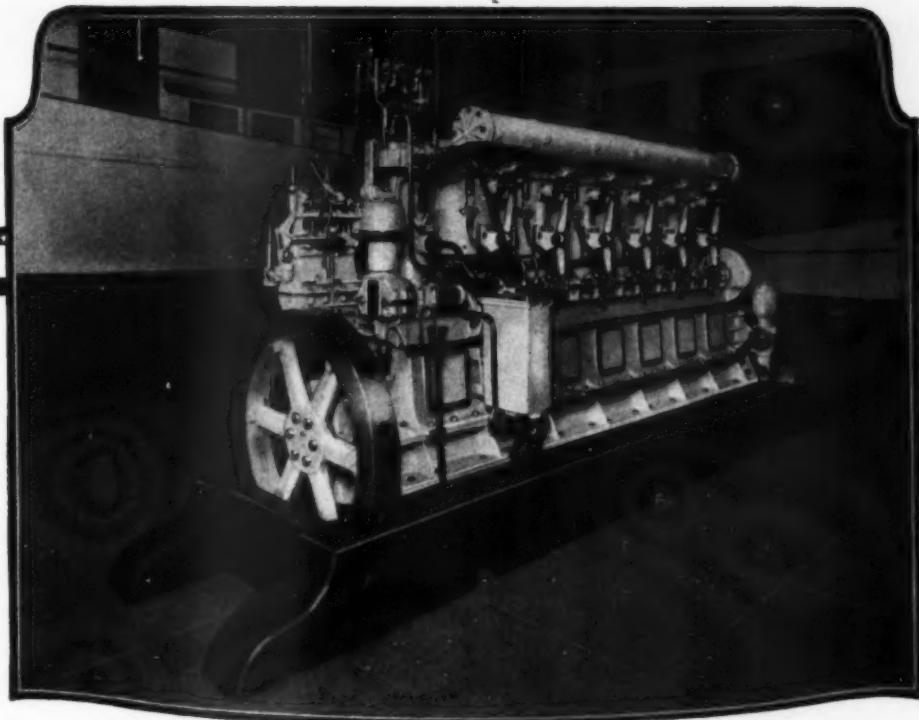
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NELSECO Marine Diesels

may now be inspected in New York. At Port Elco, the permanent show room of our affiliated company, the Elco Works, you will find a 180 H.P. Nelseco conveniently placed for your examination.

Port Elco will be a part of the Motor Boat Show, January 4-12, and you are cordially invited to visit us and inspect this highly economical marine power plant.

The New London Ship and Engine Co.

Groton,

Conn., U. S. A.

Established 1910, 230,000 Horse Power Built to date

New York Office and Permanent Show Room

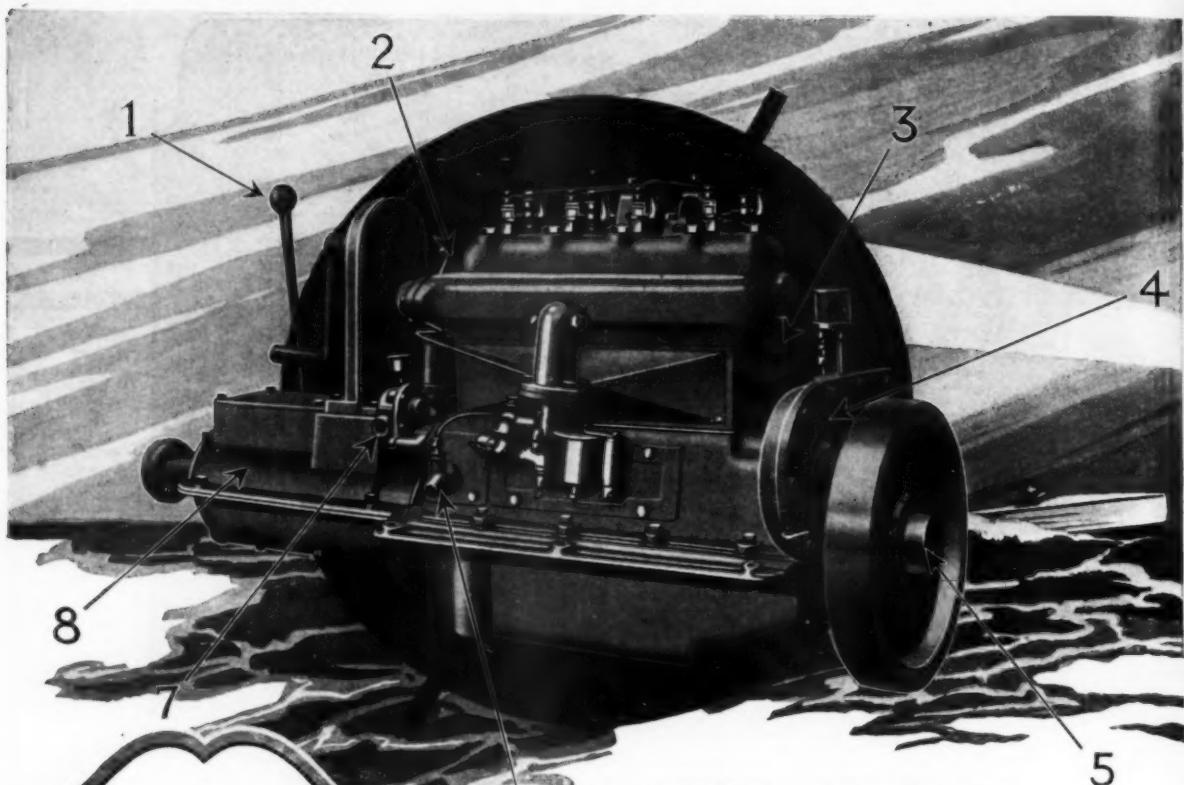
247 Park Ave. and 107 East 46th Street

Telephone Vanderbilt 2320

New York City



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 119 West 40th Street, New York



**The
Refinements:**

1 Round, nickel-plated REVERSE GEAR LEVER. Smart appearance with ball grip top.

2 CONTROL LEVERS of new design — handier and neater looking.

3 Special oil-proof PISTON RINGS, reducing carbonizing and plug fouling and increasing fuel economy.

4 TIMING GEARS made permanently quiet through use of two gears of condensite-celeron with two of metal. Extra precision insures absolute interchangeability, eliminating all chance of a poorly matched gear train.

5 GUARD over front starting crank head adding appearance and safety.

6 OIL PUMP of heavy-duty type increasing margin of lubricating safety.

7 WATER PUMP improved in efficiency and strength.

8 REVERSE GEAR finished with bronze band. Safeguarded against friction.

IT'S HERE!

6 —the greater Universal for 1924

DEPENDABLE power—smooth, yet gritty—has always been Universal's "anchor-to-windward." But never, in all their 23 years of engine-building, have Universal engineers been content to rest on past achievement—and so, for 1924, Universal announces important refinements.

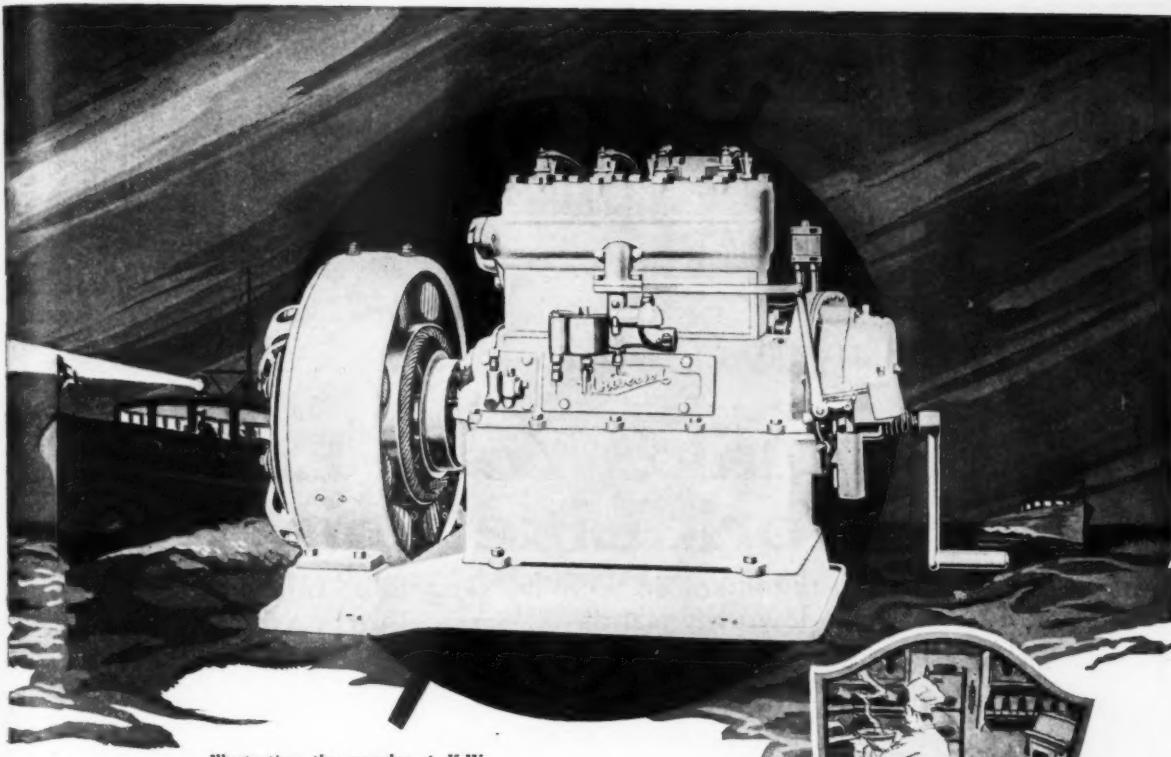
Even more reliable, if such is possible, than its popular predecessor, this new Universal power plant brings a new smoothness and quiet to its work.

Eight different parts of the motor are affected, each refinement showing a betterment in efficiency. Matching the achievements in its inner perfection, a more attractive, neater job on the outside has been produced—a motor that's a joy to look at, just as it's a pleasure to run.

Now, more than ever, the Universal 9-12 H. P. Marine Motor is "World's Standard for Boats under 30 Feet."

Write for Catalog

—stating size and type of craft you have in mind. Do not choose your power plant before inspecting this greater Universal. Its reasonable price will surprise you. Atwater-Kent igniter or Bosch magneto; self-starter if you wish; eight different types of assembly to choose from.



Illustrating the popular 4 K.W.
marine-type Universal Generating
Set

Cruise with the Electrical Comforts of Home

ELECTRICITY from a dependable Universal plant brings to your craft a comfort and convenience far out of proportion to its cost. And Universal's four-cylinder power is smooth—quiet and remarkably free from disturbing vibration where current is wanted in port.

Operate your deck and signal lights, keep your all-important radio batteries at full charge—cook, light and add the modern turn-the-switch handiness of your home to cruising with this favorite of all marine lighting units.

From the moderate-sized cruiser to the luxurious yacht of heroic dimensions, there's a size Universal to fit. Sizes 2 K.W. to 25 K.W., with compactness and accessibility that's ideal.

Recent installations include the "Wasp," Wm. Wrigley, Jr., Chicago; "Edris," Thomas H. Ince, Culver City, Cal.; "Cigarette," Gordon Hamersley, New York City; "Gypsy," Hal. E. Roach, Culver City, Cal.; "Windsor II," Mr. Megeath, Port Huron, Mich., and "Samona," W. J. Hole, Los Angeles.



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 119 West 40th Street, New York

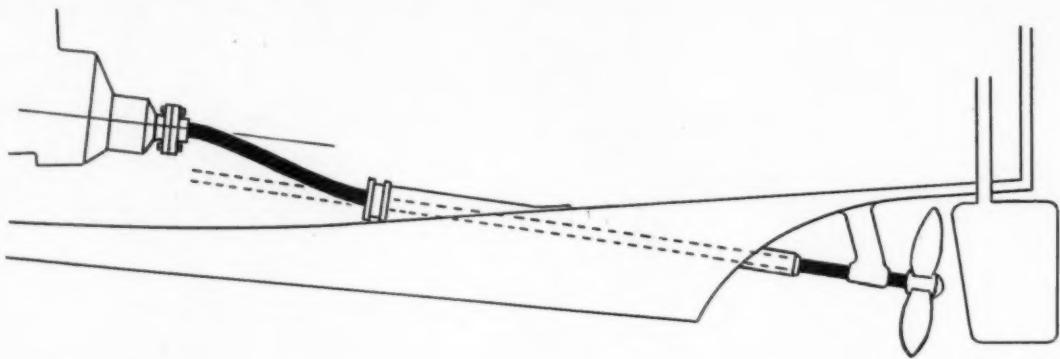


Write for Bulletin 30

UNIVERSAL MOTOR CO.

40 Ceape St., Oshkosh, Wis.

Not connected with any other firm using the
name "Universal"



Don't Make Your Engine Work Like This

Of course the misalignment up there is exaggerated but the condition shown is slowing down thousands of boats—maybe yours?

Such misalignment is almost bound to take place:

- (a) When a new hull is launched—the hull is supported differently.
- (b) When a new hull swells on absorbing water.
- (c) When a hull encounters rough water.

The mere installation of a pair of universal joints like the one shown below has been known to increase the power available at the propeller 17%.



SELECT YOUR UNIVERSAL JOINTS FROM THIS TABLE

If Angle of Operation is more than 10°, consult us.

SIZE OF JOINT	MAX. SHAFT DIA. POSSIBLE	H.P. CAPACITY AT 1000 R.P.M.	LENGTH SINGLE JOINT	DIA. OF CIRCLE FOR SWING	APPROX. WEIGHT
B-1	1 1/4"	13	7 1/2"	4 5/8"	7 lbs.
B-2	1 1/2"	26	7 1/2"	5 3/4"	11 lbs.
B-3	1 7/8"	34	8 1/2"	6 1/4"	18 lbs.
B-4	1 7/8"	41	8 1/2"	6 13/16"	20 lbs.
B-5	2 1/8"	62	10 1/2"	7 3/16"	30 lbs.
B-5	2 5/8"	62	13 1/4"	7 3/16"	35 lbs.

Blood Brothers Machine Co.

Pioneer Makers of Universal Joints

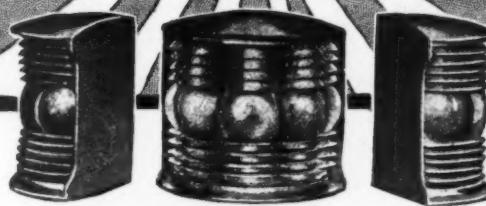
ALLEGAN

MICHIGAN

If your marine supply dealer or boat builder does not carry Blood Universal Joints in stock, write us for prices and name of nearest dealer



CARPENTER
MOTOR
BOAT
SPECIALTIES



NOBODY

who owns or covets a boat can afford to miss the Greatest Motor Boat Show ever held.

NOBODY

who attends the Show can afford to miss our display of up-to-the-minute Specialties. If you doubt this Sack will be there to tell you Why.

The Carpenter Motor Boat Specialties

The Carpenter Electric Running Lights
The Carpenter Electric Post Lights
The G. B. C. Adjustable Strut
The Kainer Ropeless Steerer
The Carpenter Drum Steerer
The G. B. C. Kerosene Range

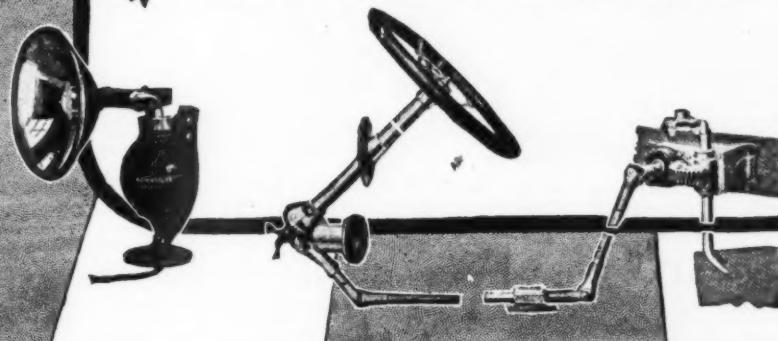
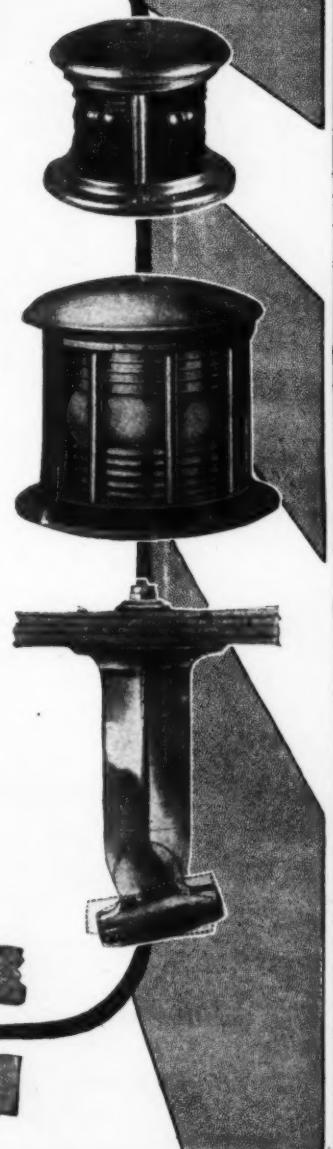
Shown in Space 43

If you are unable to attend the show
send for our literature about them.

GEO. B. CARPENTER & CO. **MARINE SUPPLIES**

Sailmakers and Riggers

200 W. Austin Avenue, Chicago





FRISBIE

VALVE-IN-HEAD MOTOR

TYPE
T
SERIES
**DUAL
VALVE**

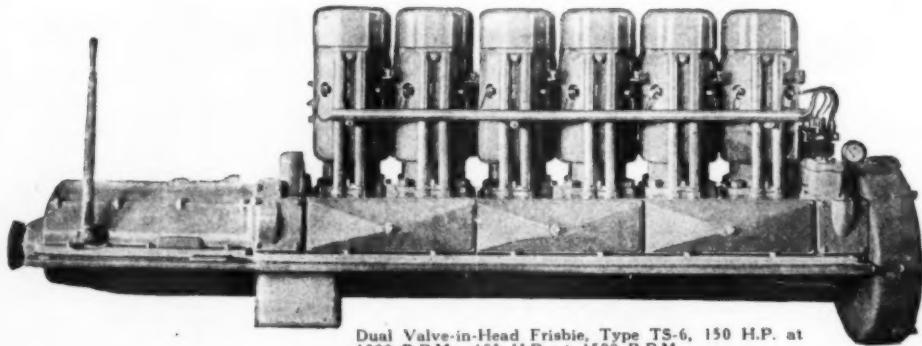


"Harpoon" type Express Cruiser designed by Wm. H. Hand, Jr.

Six of these boats have been constructed on the Connecticut River opposite Middletown by the Portland Yacht Yard, Incorporated, of Portland, Conn. The original has held the Express Cruiser Championship of America for the past two years.

The latest, now building for a prominent yachtsman, will, of course, be powered with the new

Type TS-6 cyl., 150-185 H.P. Dual Valve Frisbie



Dual Valve-in-Head, Frisbie, Type TS-6, 150 H.P. at 1200 R.P.M.—185 H.P. at 1500 R.P.M.

Also built as a heavy duty, medium speed machine developing 75 H.P. at 600 R.P.M. and 100 H.P. at 900 R.P.M. The most rugged engine of its type produced. Constructed for service.

Particulars covering any Frisbie on request.

The Frisbie Motor Co., 7 College Street, Middletown, Conn.

Manufacturers for over 20 years of overhead valve gasoline and kerosene engines for the propulsion of boats



Advertising Index will be found on page 276

This engine has full pressure feed water cooled oiling system, seven bearing heat treated chrome nickel steel crank shaft, cam shaft and rods; all material of the best obtainable at any price.

A complete unit with electric starting and lighting system, double ignition, reverse gear and accessories designed as an integral part of the engine.



FRISBIE

VALVE-IN-HEAD MOTOR

The Frisbie Dual Valve Line

A clean, powerful, completely inclosed type of motor that enhances the Frisbie reputation for reliability, economy and reserve power. Designed for cruisers, auxiliary yachts, passenger boats, and work boats.

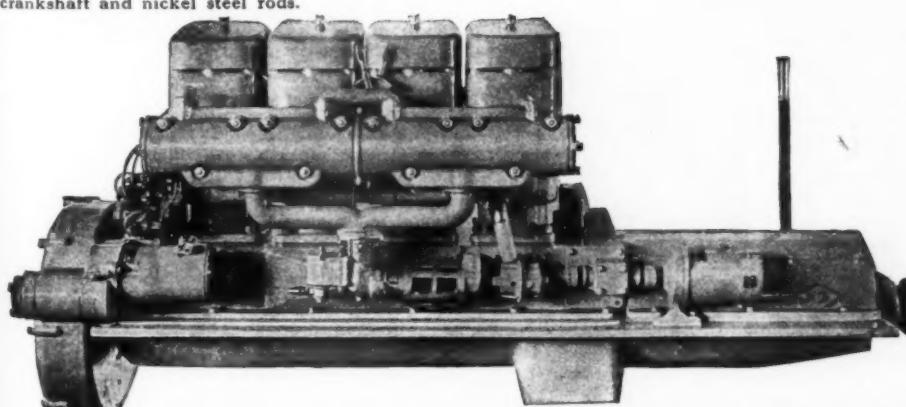
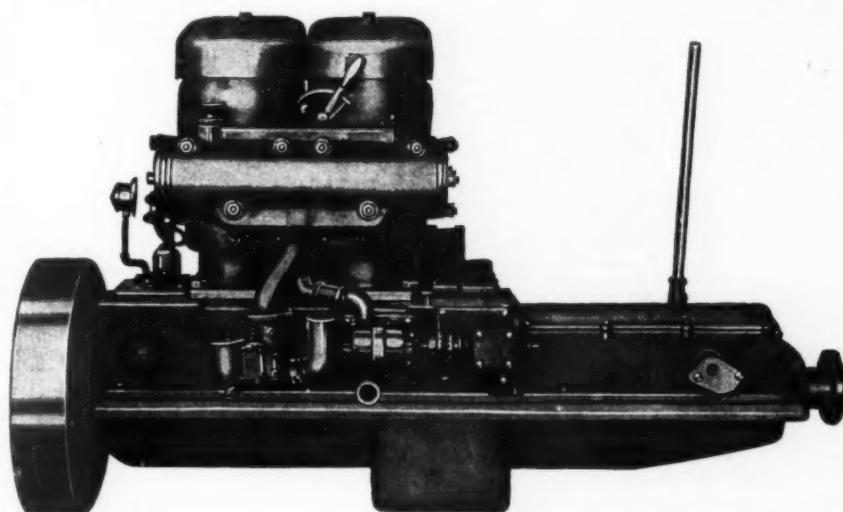
Model TM-2, Two Cylinder, 23-28 H.P.

A heavy duty, medium speed, four cycle engine developing over its rated power at from 600 to 750 R. P. M. Dual overhead valves in removable heads, hot spot manifold, pressure feed oil. Three bearing nickel steel crankshaft and nickel steel rods.

Model TM-4, Four Cylinder, 50 to 75 H.P.

A heavy duty, medium speed, four-cycle marine engine designed to carry full load at from 600 to 900 R.P.M. Dual overhead valves in removable heads, hot spot manifold, pressure feed oil. Five bearing nickel steel crankshaft and nickel steel rods.

TYPE
T
SERIES



Model TS-4, Four Cylinder, 100 to 125 H.P.

A high duty, high speed engine of the same construction designed to carry full load at from 1200 to 1500 R.P.M.

NOTE:—These engines can be built with manifolds on either side and to turn either right or left hand. Standard model has manifolds on port hand as illustrated and turns to starboard (right hand, turning right hand wheel).

The Frisbie Motor Co., 7 College Street, Middletown, Conn.

Manufacturers for over 20 years of overhead valve gasoline and kerosene engines for the propulsion of boats



Why they "put it up to old man Joe"

Letters from leading engine builders who use Joes Gears as standard equipment



CHARLES A. CARLSON
PRESIDENT-GENERAL MANAGER

CABLE ADDRESS: "JUJERMO" REPORT

TELEPHONE: REPORT 179

NEW JERSEY MOTORS, INC.

MANUFACTURERS OF



MARINE MOTORS
ELECTRIC LIGHT OUTFITS
OVERHEAD VALVE-HEADS
PUMPING OUTFITS

KEYPORT, N. J.,
July 30, 1923.

The Snow & Petrelli Mfg. Co.
New Haven, Conn.

Gentlemen: Atten: A. T. Nabstdt.

As we are now making our final decisions as to our 1924 Model, we are writing you to state that we checked up our Reverse Gear Service Sheets and we find that the Joes Gear has been 99% perfect. Taking in consideration the hundreds of NJM Motors we have put out equipped with Joes Gears, and comparing the Service Sheets with those of gears that we used in our early days, we have to take our hats off to old man Joe, as he gives us the service.

We have decided to equip our 1924 Models with your gears, as we use nothing but the best material and the best accessories that can be had on the NJM Models. It has been proved this year that the NJM Motor equipped with Joes Reverse Gears has been one of the most dependable outfits in the marine field in its particular class. We cannot see how we can improve on the combination and will be glad to take up the matter of delivery, etc., with you in the near future.

Yours very truly,
NEW JERSEY MOTORS, INC.,

Chas A. Carlson

PRESIDENT.

CAC-GE

If your engine is not already Joes equipped, it can be easily. Just call at the nearest Joes Distributors; or tell us make of your engine, number of cylinders and bore and stroke, the size of your boat and what you use it for, and we will recommend the size and type of Joes Gear that will give you the best service. For sale by all motor boat builders and accessory dealers.

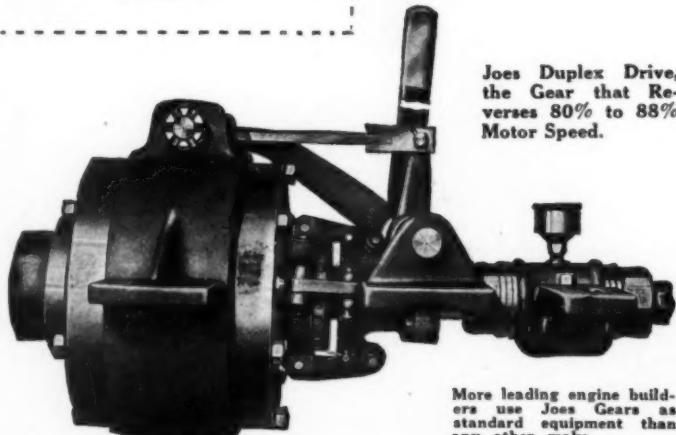
Complete catalog of Joes Reverse Gears, Safety Rear Starters and One-Way Clutches on request.

The Snow & Petrelli Mfg. Co.
154 Brewery St., New Haven, Conn.

After You Buy a Joes Gear— SERVICE

The following Distributors carry a stock of Joes Gears and parts, and gladly give you free service.

Boston, Mass.—Gray-Aldrich Co., Inc., 6 Commercial Wharf, New York—Sutter Bros., 44 Third Ave.; Service Station Foot of East 92nd St., Brooklyn, **Clayton**, N. Y.—Lawrence River Motor & Machine Co., Philadelphia, Pa.—W. E. Gochenaur Mfg. Co., 612 Arch St., Baltimore, Md.—Unger & Mahon, Inc., Pratt and Gay Sts., Detroit, Mich.—Henry H. Smith & Co., 252 Jefferson Ave., East Cleveland, Ohio—Wm. F. Meier, 1423 W. 77th St., St. Louis, Mo.—William Grossman Boat & Motor Co., 1630 Pine St., Chicago, Ill.—W. L. Masters & Co., 229 North State St., New Orleans, La.—Arthur Dunc's Sons, 130 Charles St., Southern California—Fellowes & Stewart, Inc., Wilmington, **Seattle**, Wash.—Pacific Marine Engine Co., Toronto, Canada—A. H. Williams Machinery Co., Montreal, Canada—Semmelhaack-Dickson, Ltd., 332 St. James St., Canada—All Branches—Canadian Fairbanks-Morse Co., Newfoundland—John Baron & Co., 241 Water St., St. Johns, New Brunswick, P. E. I.—T. McAvity & Son, St. John, N. B., **England**—J. King & Co., 19 Church Row, Limehouse, E. London, **Turkey**—Flat-Filiale di Constantinople Galata, Palazzo Karakoy, No. 13-15—Argentina—S. A. Braham & Sons, Buenos Aires, **Australia**—Acme Cycle Co., Melbourne, **Philippine Islands**—Pacific Commercial Co., Manila.



Joes Duplex Drive,
the Gear that Reverses 80% to 88%
Motor Speed.

More leading engine builders use Joes Gears as standard equipment than any other make.

Visit our exhibit at the National Motor Boat Show, New York, Jan. 4-12, Space 71, Mezzanine Floor, Grand Central Palace

JOES FAMOUS REVERSE GEARS REVERSE 80%-88% of MOTOR SPEED

Advertising Index will be found on page 276

BUILDERS OF MARINE ENGINES FOR 20 YEARS

LOCKWOOD-ASH MOTOR COMPANY

(INCORPORATED)

MANUFACTURERS

A. L. LOCKWOOD, PRESIDENT & GEN. MGR.
 C. H. FRANKLIN, VICE-PRESIDENT
 W. L. ASH, SECRETARY
 L. H. LOCKWOOD, TREASURER



EXPORT OFFICE
 116 BROAD ST.
 NEW YORK
 HAROLD FEE, MGR.
 CABLE ADDRESS "LOCKASH."

JACKSON, MICH.

January 1, 1924.

To Marine Engine Users and Dealers,
 Everywhere in the U. S.

Subject: L-A Golden Rule Selling Policy.

Gentlemen:

In 1924 we are going to sell more than L-A Marine Engines -- we are going to sell marine engine satisfaction. And we are going to sell it on a Golden Rule Basis.

All so-called free trial offers, all of the usual money-back guarantees we are going to sweep aside. They have been used so much, and with so many jokers and strings, that they have come to mean absolutely nothing.

We simply want marine engine dealers to know, and customers to know, that from now on L-A Marine Engines must give satisfaction to their owners, or the Lockwood-Ash Motor Company will make good. If an L-A Marine Engine user feels -- within a reasonable time -- that he has not received his money's worth, we will authorize his dealer to take the engine back and refund the purchase price. We, in turn, will refund to the dealer.

That's all there is to it -- no conditions, no strings. We simply invite the purchaser of an L-A Motor to sign a slip -- just like the one reproduced on the next page -- requesting the privilege of returning the motor if it fails to satisfy him.

We have confidence in L-A Marine Engines, and we have confidence in people -- and our 1924 selling is based on that confidence.

Very truly yours,

LOCKWOOD-ASH MOTOR COMPANY

ALL:E

THIS SYMBOL IS YOUR GUARANTEE OF SATISFACTION



L-A MARINE ENGINE RETURN PRIVILEGE

DATE

L-A MARINE ENGINE DEALER

DEAR SIR:

I request the privilege of returning the L-A Marine Engine I have purchased, which is Model _____ Number _____ rated at _____ H.P., within a period of _____ days, if I do not find it satisfactory for my use, with the understanding that I am to be refunded the price I paid in full.

PURCHASER

ADDRESS

GRANTED:

DEALER

Selling **L-A** Marine Engines by Golden Rule

*Purchaser simply signs the slip above,
then we make good if the engine doesn't*

THE slip above tells the whole story of the L-A Golden Rule Selling Policy. It's all as simple as A-B-C.

We furnish L-A dealers with slips like the above, in duplicate. Every purchaser of an L-A Engine who wants to be perfectly sure that the L-A is the exact engine for his needs may sign a slip in duplicate—specifying the period of time for which he desires the return privilege. Then the dealer fills in the model number, the engine number and the rated horse power and signs his name.

One copy of the slip the dealer retains for his records, and the other he sends to us. That's all there is to it—we make good on any slip filed with us, if the purchaser returns his engine.

Frankly, we expect precious few L-A owners to turn back their engines. Over a twenty-year period the L-A has demonstrated a reliability that is practically 100%. But we want every pur-

chaser of an L-A to know that he can get his money back if he is not fully satisfied—and so we have worked out the L-A Golden Rule Selling Policy.

Under this policy we authorize any L-A dealer to refund the purchase price in full if the customer desires it—and the customer is to be the sole judge. We in turn will refund promptly to the dealer. No ifs nor ands, no conditions of any kind. L-A Engines must make good or we will.

We have discussed the L-A Golden Rule Selling Policy with representative marine engine dealers in many parts of the country. To a man they are enthusiastic about it. They believe that it marks a real step forward in marine engine selling. And as for us—we rest our business future on our confidence in L-A Marine Engines and our confidence in the people who buy them.

Please write us if you have any questions to ask.

LOCKWOOD-ASH MOTOR COMPANY, 411 JACKSON ST., JACKSON, MICHIGAN
Builders of Marine Engines for 20 Years



THIS SYMBOL IS YOUR GUARANTEE OF SATISFACTION

THE *L-A* MODEL 41

Single Cyl.—4 Cyc. 5 H. P. Motor

Built around Ford sized parts

THE L-A Model 41 stands unique in the marine engine field. Brought out a year ago, it has made a decided hit with boatmen all over the country. They have found it powerful, reliable and economical to own—neat, trim and pleasing to the eye.

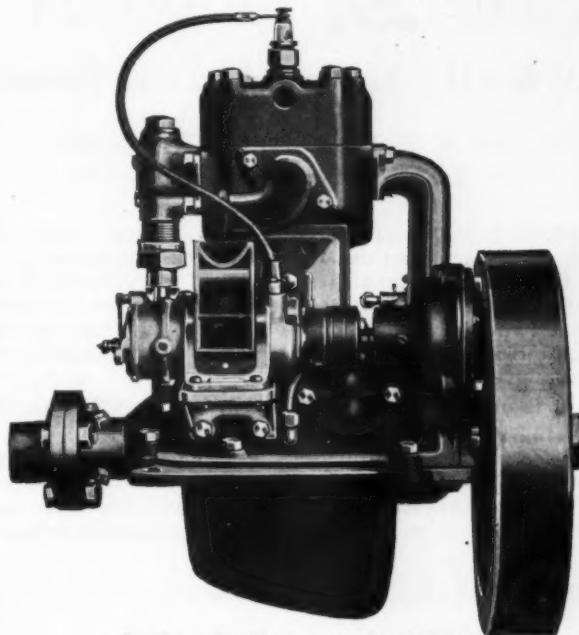
Built around Ford sized parts, replacements—in an emergency—can be secured from the nearest Ford dealer without delay.

It is light in weight (approximately 165 lbs.) and light in gas consumption.

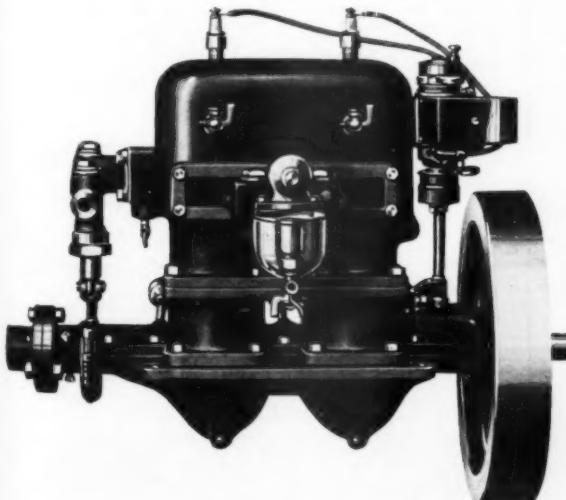
It is furnished with Bosch Magneto and Impulse Coupling as standard equipment, but battery ignition can be had in place of magneto if desired.

It embodies these exceptional features: Counter-balanced crankshaft, Special breather pipe, Liberal main bearing surfaces, All bronze water pump with stuffing nut, Bronze eccentric strap, and many others.

All these are points that the wise boatmen will take to instantly. The L-A Model 41 is just the motor they have been waiting for.



Starboard side—L-A Model 41



L-A Model 68—Starboard side

THE *L-A* MODEL 68

6 and 8 H. P. 2 Cyl.—2 Cyc. Engines

6 H. P. for 15 ft. to 24 ft. craft

8 H. P. for 20 ft. to 30 ft. craft

THE L-A Model 68 adapts itself to a wide range of boat sizes and types—pleasure boats, small hydroplanes, light runabouts, dinghies, yacht tenders and as auxiliary power for sail boats.

Because it is easy-starting, smooth running, powerful, silent, and clean, and because it is pleasing in appearance, it has won pronounced favor with all who have installed it.

It is equipped with battery ignition—but Bosch Magneto and Impulse Coupling can be furnished if desired.

The L-A Model 68 makes real friends of its customers—it's a motor worth handling.

LOCKWOOD-ASH MOTOR COMPANY, 411 JACKSON ST., JACKSON, MICHIGAN
Builders of Marine Engines for 20 Years



THIS SYMBOL IS YOUR GUARANTEE OF SATISFACTION

THE *LA* MODEL 24

2½ & 4 H.P. Single Cyl.—2 Cyc. Engines

2½ H. P. for 14 ft. to 18 ft. craft

4 H. P. for 16 ft. to 20 ft. craft

THE L-A Model 24 represents the ideal motor for summer resort use—for inland lakes and rivers.

Its extremely simple construction recommends it to the amateur, because of its ease of operation—to the work-boat owner because he knows that simplicity means long, uninterrupted service, with freedom from breakdowns and petty annoyances.

It is moderate in weight, sturdy and trouble-free. It starts easily and runs sweetly.

It is equipped with battery ignition—but Bosch Magneto and Impulse Coupling can be furnished if desired.

The L-A Model 24 is a good, dependable, every-day type of engine—one for which there is a genuine demand.

20 years of successful marine engine building

What they mean to the dealer

TWENTY years of sound marine engine experience stand back of L-A Marine Engines.

Twenty years of building and improving have developed L-A motors to their high state of perfection. In design, workmanship and material L-A Marine Engines are today unexcelled in their field.

And what does this mean to the L-A dealer? It means a steady, dependable business. It means clean transactions and satisfied customers. For in 20 years of honest and successful effort, 20 years of straightforward dealing, the Lockwood-Ash name has grown to stand for something among marine engine owners—and that something is a reliable product, priced reasonably, and backed by its manufacturers.

Truly Lockwood-Ash owners know that the L-A symbol is their guarantee of satisfaction.

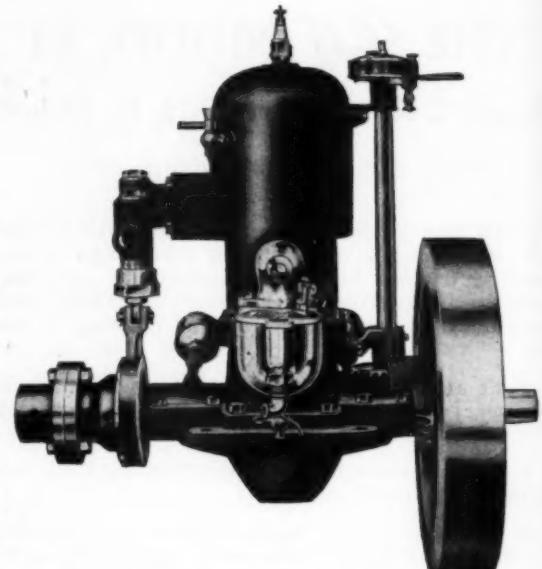
If you don't know the Lockwood-Ash proposition to dealers, write for it immediately—to your nearest distributor, or direct to us. You'll like the L-A Golden Rule Selling Plan.

LOCKWOOD-ASH DISTRIBUTORS

Brooklyn, N. Y., Hyde Boat and Engine Co., 356 Bergen St., at Fourth Ave.
New Orleans, La., Arthur Duvic's Sons, 122 Chartres St.
Philadelphia, Pa., Marine Engine Co. of Philadelphia, Bourse Building.
Seattle, Wash., Pacific Marine Engine Co., 906 Western Ave.
Norfolk, Va., Mianus Motor Works, 215 W. Main St.
Newport, Ark., Henry M. Owen.
Fort Worth, Texas, Veith-Crawford Hardware Co.
Jacksonville, Fla., Burroughs-McMeekin Co., 30 E. Bay St.
St. Louis, Mo., William Grossman, 1630 Pine St.
Montreal, Quebec, Canada, F. I. Mitchell, 633 Notre Dame St. E.

FOREIGN

Export Office—New York City, 116 Broad St., Harold Fee, Manager.



Starboard Side—L-A Model 24

What Users Think of *LA* Marine Engines

"Wonderful Satisfaction"

"Please allow me to compliment you on your Model 41. I have had wonderful satisfaction with my motor. It hasn't caused me any trouble whatsoever, and I have shown several people how simple it is to start and how smoothly it runs. With what experience I have had, I am satisfied to say there isn't an engine for its size its equal."

NEIL MacNAUGHTON, Parry Sound.

"Reliable"

"I am very glad to state that the Lockwood-Ash Motor is the **MOST RELIABLE** motor I have ever seen. Some motors look good and hold up for a while and then stop running forever—while the L-A stands up for years."

A. W. SHAW, Bradenton, Fla.

"More Than We Claim"

"I have one of your 2½ h.p. motors and I have always found them **MORE THAN YOU RECOMMEND THEM TO BE**. I never have any trouble in running, get good results and I always get to where I am going. This is not the case with a whole lot of other marine engines. If any person wants any points on your engines, will be glad to tell them what I think, as I don't know where they can get any better engines."

FRANK EID, Wever, Iowa.

"L-A the Best"

"I have used one of your two-cycle engines several years and have greater confidence in it than any other engine I have ever used, and I have recommended it to all boatmen for small boats. I have used seven other makes of engines and find the L-A the best."

C. E. BRIDGES, Bluehill Falls, Me.

LOCKWOOD-ASH MOTOR COMPANY, 411 JACKSON ST., JACKSON, MICHIGAN
Builders of Marine Engines for 20 Years



MULLINS

STEEL BOATS

Combine Safety and Pleasure

The Mullins Line for 1924 comprises specially designed models, which meet practically every requirement, including motor boats, launches, outboard motor boats, row boats, hunting and fishing boats. They are unequalled for safety, service and efficiency, and combine every desirable quality of speed, graceful lines, comfort, ease of operation and durability.

All models are standarized and equipped with Mullins airtight compartments, which makes them as safe as a life boat. The few seams in Mullins steel boats are securely sealed, making a leak impossible. This insures a dry, clean and comfortable boat, always ready for use.

Over 75,000 satisfied users endorse them as infinitely superior to boats of wood construction. Mullins steel boats are fully guaranteed against leaking, waterlogging, drying out, opening seams and the necessity of calking.

Write for Catalog

Send today for catalog which illustrates and describes the 1924 complete line of Mullins steel motor boats, launches, outboard motor boats, row boats, hunting and fishing boats.

DEALERS: Write for Mullins 1924 Sales Plan
which gives complete information about our 1924 sales campaign, with terms and discounts to authorized Mullins agents.

MULLINS BODY CORPORATION, 820 Depot St., Salem, O.



MULLINS

"Outboard Special"

The "Outboard Special" boat is specially constructed and designed for the application of outboard motors. It runs on an even keel, does not bury at stern or ride out of the water at the bow. Special reinforced construction throughout prevents vibration and does not allow the motor to work loose.



MULLINS 18-foot Leader Launch

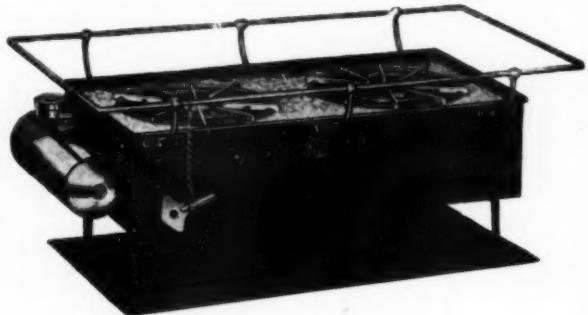
The handsome 18-foot Leader Launch is equipped with 9-12 H. P. Universal motor, with Atwater Kent Ignition and reverse gear, including Mullins silent under-water exhaust. Speed, 11 miles.

Hear What GAR WOOD Says about



CRUISER, GALLEY STOVE

*Despite the roughness
we never missed
a meal*



GAR WOOD says—

"I want to express my appreciation for what you have done for the motor boat men of the country in perfecting CRUISER-GALLEY-STOVE."

On our test run from Miami, Florida, to New York City on GAR JR. II., we had your stove aboard. Despite the roughest seas, we never missed a meal. Your stove cooked perfectly under these severe conditions."

Gar Wood not only uses CRUISER-GALLEY-STOVE himself but he recommends it for all cruisers and installs it on the fine cruisers built in his own plant, such as Cigarette, Corisande, etc. No one has given more study to boat equipment than GAR WOOD.

Here is the ideal stove for your galley. Burns ordinary gasoline with a hot, steady, blue flame that a 30-mile gale can't blow out. No special fuel to carry. Absolutely safe, efficient, economical and reliable. A size for every boat.

PRICES

No. 2 Galley, attached tank.....	\$16.50	No. 3 Galley, 3 gallon tank.....	\$27.50
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See The TIEBOUT EXHIBIT

Visitors are invited to the Tiebout Headquarters at the Motor Boat Show, Booths 19 and 20. There will be displayed selected items from the comprehensive stock of Marine Hardware and Supplies that our customers say "contains more useful and serviceable items for ship or boat than can be found anywhere."

"Locks and Latches for Doors and Hatches"

W. & J. TIEBOUT
118 Chambers Street, New York City

Many Entered for Southern Regattas

(Continued from page 78)

feet in length powered with motors of not over 825 cubic inches, eight entries have been received including Miss Mary, entered by Edward Grimm of Buffalo, four Bearcats entered by E. M. Gregory of Detroit, and Wilbur Young of New York. Miss Great Lakes, a new craft now under construction at the Great Lakes Boat Building Corporation at Milwaukee, is being entered by W. C. Morehead; Jerry, entered by Jerry R. McCarthy of Detroit, and Wilgo'd by J. A. Williams of Buffalo. The boats entered in this class will race over a course of thirty miles at 2:35 o'clock on March 7 and 8, the qualifying speed being thirty-five miles an hour.

Immediately after the conclusion of the Miami Beach races, all the competing boats, with the exception of the hydroplanes, will be shipped to Havana, Cuba, where races for the same classes will be held under the auspices of the Habana Yacht Club on March 15 and 16.

Full details of the Southern races may be obtained from C. G. Fisher, Miami Beach, Florida, E. G. Sewell, Miami Chamber of Commerce, Miami, Florida, Senor Rafael Posso, Habana Yacht Club, Playa de Mariano, Apartado 1013, Havana, Cuba, and the editor of MOTOR BOATING.

Regatta Planned for Palm Beach

What will probably be one of the biggest mid-winter power boat meets of the season will be held under the auspices of the Palm Beach Y. C. on Thursday, February 21, and Friday, February 22, 1924.

A course will be laid off in beautiful Lake Worth, directly opposite the center of winter activity, where the events will be witnessed by thousands. There is ample water on the course for the fastest of boats and facilities will be provided to handle all sorts of racing boats in safety. Lake Worth has racing facilities equal, if not better than any other boating center in Florida. The smooth water course will be an ideal one for those who wish to set up a speed record for their class.

The first day of racing will be for boats of the cruising and sailing types, with handsome prizes to the winners. The next day will be set aside as a day of thrills for many of the fastest power craft in the world will be on hand to enthuse the multitudes with their hair-raising performances. The hydroplane events will be for boats classing under the Mississippi Valley Power Boat Association rules. On these boats, freight expenses will be paid both to and from the course. The regular cash prizes of the Valley association will apply in the hydro events. Runabouts will race for valuable prizes.

All racing men, interested in entering these events, and partaking of the far-famed Palm Beach hospitality, should immediately get in touch with Com. Alfred W. Wagg, West Palm Beach, Fla., or Herbert P. Margerum, Trenton, N. J. The eligibility of hydroplanes to partake of the expense money or cash prizes will be decided by the committee.

Grebe CR-14 Broadcast Receiver

A. H. Grebe & Co., Inc., for more than ten years engaged in the manufacture of radio receiving apparatus, have recently introduced their type CR-14 Broadcast Receiver to meet the rapidly increasing demand for a popularly priced instrument which operates at a minimum cost.

An instrument of rich, dignified beauty, the Grebe CR-14 adds charm to even the most elaborate yacht. All batteries are hidden in the attractively finished walnut cabinet. The circuit employed is the familiar Armstrong Regenerating Circuit. Two simple tuning adjustments used in conjunction with a 2-adjustment Wavelength Switch cover all broadcast wave-lengths.

Three UV-199 or C-299 tubes are employed and special sockets to fit these tubes are provided. This makes it unnecessary for you to purchase adapters. These tubes require two dry cells for filament lighting current. These and the three B batteries all fit into two compartments in the cabinet. The B battery compartment accommodates the new vertical type.

The usual Grebe standards of construction are well carried out in the CR-14 Broadcast Receiver. The two Tapered Grip Dials are supplemented by the familiar Grebe Tangent Wheel Verniers. Individual shields, automatic filament control, rigid wiring and molded parts of lustrous Bakelite are a few of the details of construction which have made the Grebe Receivers so popular.

This Receiver will bring in long distance as well as local stations with loud speaker volume using an outdoor antenna of moderate size. A 2-stage Audio Frequency Amplifier is included for loud speaker operation. The operating switch, including the Grebe automatic filament control cuts in one or two stages of amplification at will.

New Propeller Metal

In order to improve the quality of the propellers which the Bryant & Berry Propeller Company of Detroit have been building for the past 22 years, a new metal has been developed in their laboratories. This new material is known as a steel bronze and has the strength and other qualities of steel. It can be forged and due to its composition it is non-corrosive and will not crystallize. It is remarkably tough and makes a very superior material from which to make propellers. This material together with the excellent workmanship which enters into the construction of the wheels made by this firm, should turn out a very superior product.

They All Use Tobin Bronze

Numerous examples have been cited recently of new boats being completed and proving successful under severe tests. In a great measure the successful performance of a boat is dependent on the under water structure, and in most cases the exposed metallic parts of the best boats have been made of Tobin bronze. Tobin bronze is a special patented alloy of brass, which has peculiar properties of resisting corrosion, and at the same time having a great ductility and strength. This metal has long been recognized by naval architects and engineers as the ideal material for all underwater purposes. While brass and bronze are made in many places the patented Tobin bronze is made only in the big plant, and mills of the American Brass Company. The largest of these mills and the general offices of the company are located at Waterbury, Conn.

Radio for the Boat

Among the progressive marine and boat supply dealers who have kept pace with the trend of the times, is the firm of R. W. Zundel, Inc., of New York, who have been carrying a very complete line of radio equipment and parts. Many yachtsmen who are patrons of this company have secured radio equipment for installation on their boats with very satisfactory results. They have specialized in portable De Forest sets, and also carry several other high grade outfits. In addition their stock of marine hardware and similar supplies is very extensive and complete.

Up Comes the Anchor

The days of toil for the yachtsmen have passed. One of the most laborious and disagreeable jobs on the average small yacht is that of dragging the anchor out of the mud and getting it up on the deck. Due to the ingenuity of the engineers of the American Engineering Company, Philadelphia, Pa., a neat little electric windlass is now available for this work. It can be installed on the forward deck so that the gypsy head is out on deck while the motor and gearing for same is attached below. In order to raise the anchor it is merely necessary to step on the control button which will turn this windlass by means of a powerful electric motor, and the anchor comes up. Contrary to expectation this is not expensive, and the machines are furnished for every standard voltage. They will operate on a storage battery without draining it. On larger vessels of the sail boat type where it is sometimes difficult to handle a heavy sail, this windlass will also prove useful in hauling in on the halyards.

How to Paint a Boat

This is the name of a little booklet just issued by the C. A. Woolsey Paint & Color Company, which describes in detail the various processes of painting and taking care of the boat. Naturally every first class boat prides itself upon its finish and appearance, and it requires continual watching to maintain this finish in the best condition. The quality of the material used is also a big factor, and it has been found that Woolsey's paints are excellent for prolonging the life of the paint coat. The special copper paints for protection against sea growths and worms also have an enviable reputation, and are extensively used among yachtsmen.

Dependable Ignition

The growing use of electric starting and lighting sets on marine engines has led to the introduction of a different form of ignition equipment on many engines. The Atwater Kent Manufacturing Co. of Philadelphia, specialists in high grade ignition equipments have been making a special form of device for handling the ignition of marine engines, using current from the electric storage battery. The special form of contact device provides a quick powerful spark, which does not fail to ignite the gas charge at the proper time.



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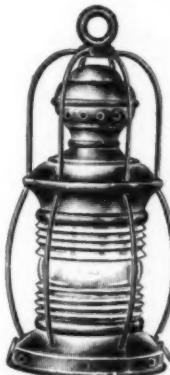
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Side Lights, \$4.95

\$34.00—10-in. Motorboat Searchlights, 6 volt, Now	\$15.00
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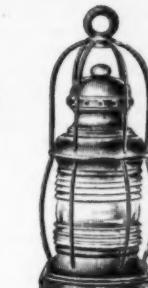
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Anchor Light, \$3.25



Class I, \$2.25; Stern
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1 1/8" Screw Eyes, Solid
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Sargent Cabin Door
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Regular Navy Steel
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Fog Horn, 24" Brass, 75c



Boat Hooks, 50c



Galv. Single Hooks
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Thimble; 1/4", 10c;
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5/8", 25c.; 1 1/4",
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Bronze and Galv. Iron Port Lights,
with Shutter, 10", \$8.50; 12", \$10.00;
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Yachting—The Best Sport in Existence

By Daniel H. Cox

IN any effort to forecast the trend of yacht design in the future, due weight must be given to recent developments in the various types of yachts recently built or now under construction. Generally, it may be said that the tendency is away from the freakish types of boats towards those of reliable and sensible design. It also appears that in all types there is a proper effort being made to reduce first cost and cost of operation as far as possible without defeating the object in view, or in other words—to make yachting possible by cutting out any unnecessary or extravagant features.

In full powered seagoing yachts there has been recently an increasing demand for Diesel vessels of a staunch, seaworthy type and the success of those that have already been built makes it practically certain that this will continue to be true in the future. The large and expensive steam yacht has been successfully replaced by Diesel yachts of smaller size with equal accommodation and seaworthy qualities, with much larger cruising radius, with a smaller crew, and as well a lower first cost and a much lower cost of operation. Such vessels as have been built and are now under construction of this type are all free from any unnecessary ornamentation or expensive and useless equipment.

In the auxiliary type of vessel when of considerable size the Diesel engine also seems to be particularly suitable and will probably be used in increasing numbers. For the smaller auxiliary, which is extremely popular at the moment, the gasoline engine will continue to be used, but in both large and small auxiliary vessels the tendency, as in the case of full powered cruising craft, is toward the seaworthy vessel rather than toward the lightly built and less substantial craft which a one time were so popular.

For the use of those who require full powered vessels capable of going to sea occasionally, but used primarily for coasting, the Diesel engine will for the most part be used, although where extremely high speed is required the gasoline engine may in certain instances be more desirable. In this type of vessel also the tendency is toward a more wholesome

vessel than in the past, owners now being insistent on reliability and serviceability and paying less attention to extreme speed except in such vessels as are used either for racing purposes or to replace an automobile where an owner uses his boat as a means of getting to his place of business.

As far as regular speed boats of the various types are concerned, a successful effort has been and will continue to be made in the direction of increasing the speed with given dimensions, as well as improving the reliability of the machinery. The remarkable improvement in reliability of gasoline engines has made possible in small hulls speeds that a few years ago would have been considered beyond the powers of imagination. This result has largely been secured by the great interest in motor boat racing which in addition to being an exciting sport is also valuable in the development of the design of engines suitable for this class of boat.

Those using yachts for southern waters will still continue to patronize the so-called houseboat, of which so many have already been built. In this class the present tendency appears to be away from the extremely large houseboat and toward vessels of more moderate dimensions.

In conclusion, it may be said that the yachtsman of today has a more sane viewpoint than seemed to exist some years ago, and does not require his Naval Architect to embody in any one vessel features that cannot properly be combined. If he wishes a seaworthy cruising yacht he is content to have one of moderate speed, and if his service requires unusual speed this he secures by having in addition a smaller vessel particularly adapted for high speed.

Similarly, he does not try to combine a sailing vessel or auxiliary suited for offshore cruising with a racing yacht that can compete successfully with yachts designed for racing only.

These facts, together with the general tendency to get away from unnecessary cost in construction and in operation, will, it is hoped, relieve yachting—one of the best sports in existence—from the stigma of being an extravagant luxury and increase its popularity.

Boating in 1924 Will Be Free of Annoyances

By William Bruns

President, Bruns, Kimball & Co., Inc.

IF I were asked to name one of the outstanding danger signs in the marine engine industry, one which threatens, or at any rate did threaten, to do considerable harm to the industry as such and the sport as a whole, I should say that it were the existence of too many factories manufacturing marine motors.

If the comparison of engine manufacturers to the consumer were somewhere near the same proportion as exists in the automobile industry there would be considerably fewer builders of motors, and by the same reasoning they would turn out a larger number of engines pro rata per year, at a reduced cost. The marine engine industry would then be pretty nearly on the same plane of production as the automobile business is today, with a resultant lowering of prices and considerable impetus to the number of people engaging in motor boating as a recreation and pleasure.

We have seen far too many engine builders, encouraged by inexperienced council, start in business only to vanish in a short time, leaving the unfortunate purchasers of their machines distinctly up against it as regards parts and service.

There is a distinct responsibility on the part of everybody connected with the marine industry from the business standpoint. It is peculiar in the sense that it has never really grown up and the limitations which are produced by this permanent indigent state naturally react against it. When the smaller engine dealer attempts to give service on the engines in his care he finds himself generally handicapped by the lack of good mechanics, and following the same line of reasoning to its conclusion, the engine and boat owner not being able to receive the proper consideration in the line of service, eventually becomes discouraged and the sport loses a devotee.

Why should not the factory producing marine engines be in addition a training school for marine engine service mechanics? If the engine builder does not produce this species who is to produce him? If the engine builder does not have enough interest in the ultimate operation of his product, who is to show this interest? And while on this subject of service I would like to go on record as saying that there should be a central body in this industry, as there is in the automobile industry, to promote the sport as a whole. They should lend their aid to the individual yacht clubs, encourage membership to them, they should assist the boat yards in various possi-

ble ways, the boat builders, the engine builders, they should work for legislation to better conditions in the sport and industry as a whole. There is a definite need for such encouragement and the sooner it is instituted the better off everyone will be.

Within the writer's limited sphere of vision there seems to have been a marked increase in the courtesy and willingness to assist, and real all round co-operation, on the part of the boat yards and service people in general toward boat owners in 1923 than has ever been noted before, and if this desire to help increases in proportion in 1924 it will eliminate one big reason for boat owners selling their boats.

I believe that 1924 will see practically the last of the so called conversion of automobile and aviation motors, which to a certain extent has been practiced in the year just past. I believe too that these hybrids have done more harm to the boating industry in general than any other single factor. It is extremely seldom that they can be operated by anybody but the man who built them, and the low price in some cases has attracted individuals with very little mechanical skill, and certainly not the amount necessary to run these engines, with disastrous results to themselves and their finances. It is the writer's opinion that the public has reached the point where they are fed up with the experimenting on these so called converted engines. With very few exceptions they have proven total failures, and the disappointment and discouragement which almost invariably results from the amateur running them has hurt the sport considerably. I believe that the boating public should, and I think will, insist upon marine motors built as such and operated after their original design.

The 1924 marine engine will approach more closely the automobile than anything yet attempted. It will have practically the same flexibility, the same smoothness of operation, a proportionately low gasoline consumption, a compactness, cleanliness and accessibility that hitherto seemed impossible, which will impart to the boat it is installed in a greater speed proportionately than ever before. Because of these improvements the boat itself will not show a bilge full of oil, or a dirty and slippery engine room floor, or a smelly and smoky cabin or engine compartment, will be perfectly controlled and the lives of the owners will not be made miserable by the soul racking vibration or the ear splitting noises.

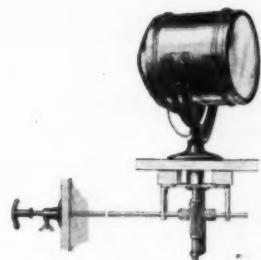
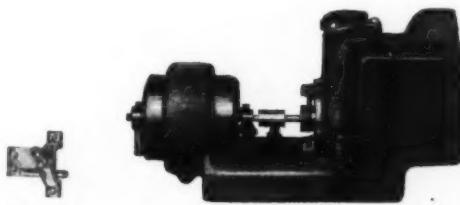
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The 2nd edition of Where to Cruise, F. W. Horenburger's famous book of Motor Boatmen's Charts and Cruising Data, is just off the press. Revised and enlarged, with many important additions, it contains 51 priceless detail charts.

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A Light Universal Joint

To those who are believers in the use of universal joints in marine propeller shafts the new small size joint just announced by the Blood-Brothers Machine Company will be of interest. This light model fills the need for a high quality joint that is light enough for use with motors up to thirteen horsepower at one thousand R.P.M. It will take care of propeller shaft sizes as high as 1 1/4 inches.

The lightest joint formerly made by this company weighed about eleven pounds and would take care of twenty-six horsepower. The new joint weighs seven pounds and will have all of the desirable features possessed by the other joints manufactured by this concern.

It is understood that this joint will sell at a low price and considering the power that can be saved through its use, will no doubt prove worth while for small boat users to investigate it.

Fire Extinguishers for Oil & Gasoline

The Fyr-Fyter Company, a Dayton, Ohio, concern, announces with pleasure that their special Fyr-Fyters for motor boats has passed the approval of the United States Steamboat Inspection Service. This approval, with that of the National Underwriters give their machines an added value over the average fire extinguisher for use on motor boats.

The outstanding superiority of the new machines is generally acknowledged throughout the motor boat industry. The company claims many important improvements on their machines which will appeal especially to the boat owners. Corrosion is a great enemy to the metal used in the manufacture of motor boats and the average fire extinguisher as well. The Fyr-Fyter Company has overcome this particular trouble by using a new metal, which is known as Monel Metal, in the manufacture of the shut-off valves in the machines.

In addition to the use of Monel Metal for the interior parts of Fyr-Fyter, a heavy pure brass shell is used on the exterior. Salt water will not effect brass like other metals. The United States Government specifies the use of brass for the Navy on account of its superiority over other metals.

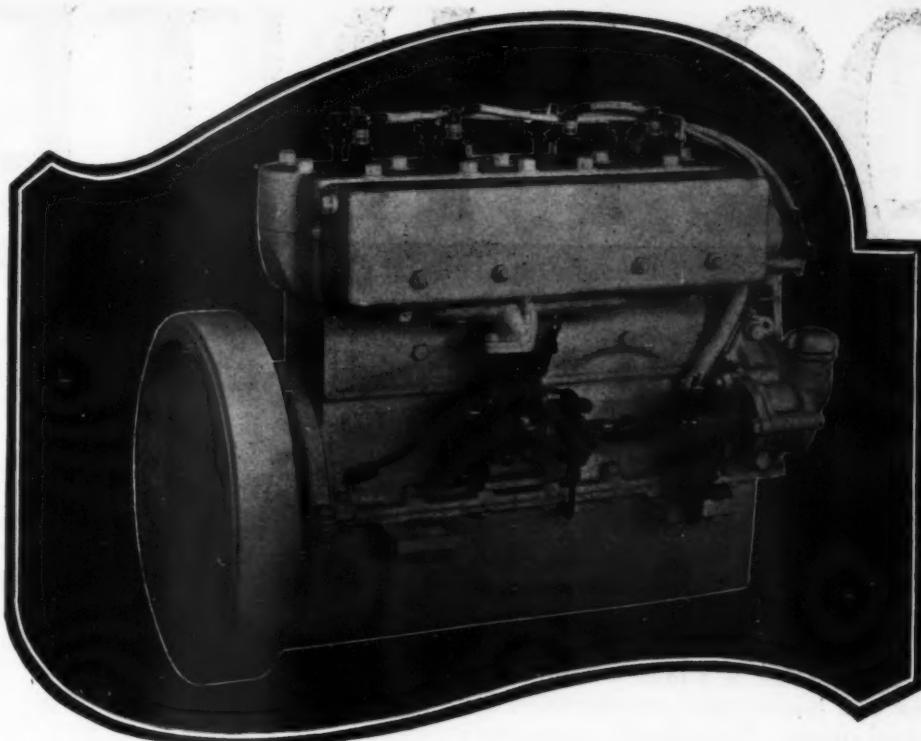
The liquid used in Fyr-Fyter is made by a secret formula and is considered one of the best and most effective fire extinguishers for use on motor boats, automobiles, etc. This liquid will instantly snuff out the flames of gasoline and oil. It will also extinguish a blaze caused by short circuits in electric motors and electric wiring. It is a non-conductor of electricity and no danger will result in its use. Fyr-Fyter Liquid will stand a temperature of 52 degrees below freezing before it will become ineffective. The use of this liquid will not injure the finest fabrics, leather, wood work, metal or highly polished or painted surfaces.

The Fyr-Fyter Company also claims many other advantages for their machine, such as the panic-proof handle—a short turn of the handle in either direction instantly unlocks the pumping device and the machine is ready for instant use. Another important improvement is the dent proof construction of their machine. The working parts of the air pump are so arranged that it will work perfectly even though the outer shell of the extinguisher should become dented or injured by rough usage. Over one million Fyr-Fyters have been sold during the past few years and the business is growing greater each month. The company is establishing branches in all the principal markets in the world and their products are taking first rank among the big users of fire extinguishers. The United States Government uses large quantities of Fyr-Fyters for the Navy, Army and the Government buildings, warehouses, etc.

The company has made arrangements with some of the prominent motor boat manufacturers to equip their Show Boats with Fyr-Fyters, and those interested in motor boating are invited to inspect the new machine during the New York Show. A big advertising campaign will be launched during the early part of 1924 for the purpose of introducing Fyr-Fyters to the boat owner. The company will be pleased to mail catalog and full information concerning their line to anyone mailing request to The Fyr-Fyter Co., Main Office, Dayton, Ohio.

Cape Cod Showing Several Boats

The Cape Cod Ship Building Corporation will exhibit at the Motor Boat Show the Cape Cod Baby Knockabout, which has been a great success the past two years; the 20-foot Special Dory Launch which has been on the market for several years; the 17-foot Club Sailing Dory; a 14-foot decked over sailing skiff; boats for outboard motors; row boats, painted and varnished; also bilge pumps, etc. The Company now has over an acre, under cover, devoted to the building of standardized boats; the yard is well equipped with machinery of various kinds, sheds for winter storage, marine railway, and deal in marine hardware.



1924 Model INTERNATIONAL-16

\$187.50
F.O.B. Detroit

A high grade small power plant for

Fast Runabouts

Auxiliaries

Small Cruisers

Work Boats

4 Cylinder, 4 Cycle, 16 H. P. at 1,000 R. P. M.

Bore, 3 $\frac{3}{4}$ inches

Stroke, 4 inches

Weight 290 pounds

18 H.P. at 1200 R.P.M.

14 H.P. at 800 R.P.M.

16 H.P. at 1000 R.P.M.

10 H.P. at 500 R.P.M.

Replacement parts obtainable at any Ford Service Station throughout the world

1924 INTERN

Replace Your Old Motor with an INTERNATIONAL-16

If you have been using a two cycle motor, or a single or double cylinder four cycle, you have a real treat in store for you the first time you ride with an INTERNATIONAL-16. You'll find a revelation in its smoothness, its flexibility, its speed, its steady power at low revolutions, its easy starting and fuel economy. You'll decide right then and there that this sturdy little four cylinder four cycle engine is the power plant you want in your boat.

There would be ten times as many boats in the water today if there were more motors like this, at a price within the reach of every man who loves a boat. The past year has proved to us that there is no limit to the demand for a good popular priced engine. Why should anyone tie up several hundred dollars in a high priced power plant where he can get the same kind of service at a fraction of the cost?

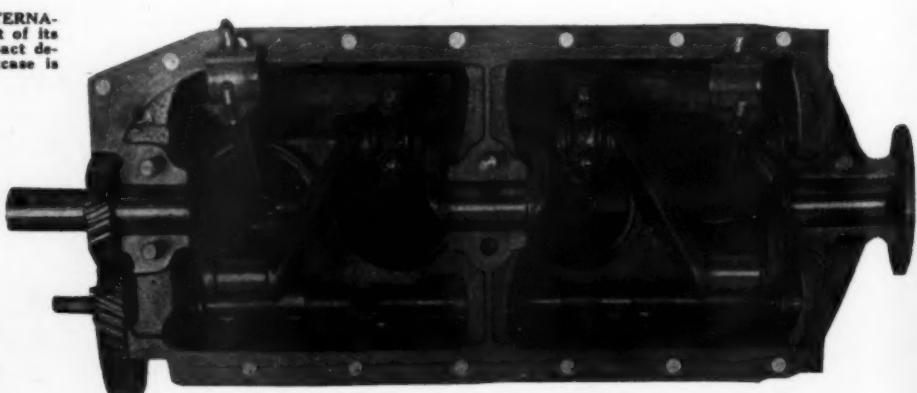
A First Class Marine Engine at a "Quantity Production" Price

The history of the automobile industry shows that quantity production is the secret of manufacturing economy. But it will be many years before any marine motor manufacturer can equal the big automobile factories in multiple production and low overhead cost per motor. So we have done the next best thing by building a marine motor of standard construction in quantity at the lowest price ever quoted for a first class four cylinder four cycle engine. You will realize the quality and the value when you inspect the INTERNATIONAL-16 and see it run.

The strength of the INTERNATIONAL-16 is a logical result of its sturdy construction and compact design. The solid upper crankcase is cast integral with the cylinders, assuring permanent alignment of the cylinders and bearings. Every working part operates in a bath of oil with positive lubrication from a bronze geared oil pump.

World-Wide Parts Service for INTERNATIONAL OWNERS

All working parts of the INTERNATIONAL-16 (except water pump, oil pump and ignition) can be duplicated from stock by any Ford service station throughout the world. This means a saving of thousands of dollars for INTERNATIONAL owners, and a further saving of thousands of dollars worth of time when they are in a hurry for replacement parts. Any Ford service man can overhaul this engine at small cost. It is the best motor for the foreign owner and export dealer who must especially consider the parts service problem on any engine he buys.



INTERNATIONAL-16

-16—A Powerful Engine for Runabout or Cruiser

The price of \$187.50 F.O.B. Detroit covers the engine with the following equipment: Atwater Kent Ignition (Type L.A.), Zenith Carburetor, Oil Pressure Gauge, Starting Crank, Spark Plugs, Spark Plug Wiring, and Propeller Coupling. Handsomely finished with gray engine enamel.

The Type LA Atwater Kent Ignition should be used only where current is furnished by a storage battery. Where it is desired to operate engine on dry batteries the Type H Atwater Kent system should be specified. This is furnished complete with coil and switch at an extra charge of \$10.00. The Type H System uses very little current and under ordinary conditions a set of six dry batteries will last a full season or longer. A storage battery may be used if desired. Atwater Kent waterproof coil for Type LA system \$5.00 extra. (A single Ford coil may be used if desired, with vibrator screwed down, making it non-vibrating.)

Paragon Enclosed Reverse Gear, complete with thrust bearing and couplings. \$75.00 extra

Paragon Open Type Reverse Gear. \$56.00 extra

Apollo Magneto Ignition. \$35.00 extra

(This magneto gives a very hot spark at low speeds. No impulse coupling is necessary as engine starts easily with the ordinary half turn of starting crank.)

Boxing for Export Shipment \$7.50 extra

Some Details of the INTERNATIONAL-16

MANIFOLD: Special design with intake and exhaust cast integral, enabling operation on either gasoline or kerosene.

CARBURETOR: Zenith (one inch size). This carburetor gives splendid results as well as exceptional economy. Only one adjustment is necessary; the rest is automatic, the speed instantly responding to the throttle.

LUBRICATION: A bronze geared oil pump draws oil from large reservoir in base and distributes it to troughs beneath connecting rods. A pressure gauge, which may be mounted on dash or bulkhead, gives visible evidence at all times as to lubrication. A float gauge indicates quantity of oil in base.

WATER PUMP: Made entirely of bronze. This is of the gear pump type and is silent in operation. Water is forced through water jackets of cylinders, cylinder head, intake and exhaust manifolds. This insures a cool exhaust as well as a properly heated intake.

CYLINDERS: Four, cast en bloc. This cylinder casting is the real foundation of the motor as the casting includes also the upper half of crank case, the sup-

ports for crankshaft bearings and camshaft bearings, the valve stem guides, valve ports, water jackets, and manifold passages.

CYLINDER HEAD: Removable cylinder head, water-jacketed, containing spark plugs and relief cocks. Quickly removed for scraping carbon, grinding valves, etc.

SALT WATER EQUIPMENT: All INTERNATIONAL motors are equipped for salt water use.

IMPORTANT DIMENSIONS

Length overall, 28 inches

Diameter of flywheel, 14 $\frac{1}{2}$ inches

Center line of crankshaft to bottom of crank-case, 5 $\frac{1}{2}$ inches

Center line of crankshaft to bottom of support lugs, 1 inch

Center line of crankshaft to top of cylinder head, 14 $\frac{1}{4}$ inches

Engine bed timbers should be spaced 9 $\frac{1}{2}$ inches

The Paragon Enclosed Reverse Gear is a brand new type for 1924. We recommend this gear especially because it affords the well known Paragon standard of workmanship in an all-enclosed gear. This gear operates in an oil bath, is dust proof, contains the necessary thrust bearings and cannot throw oil. For those who want a less expensive outfit we list the open type Paragon Gear at only \$56.00 extra.



MARINE



MOTORS

Cheap in Nothing But the Price

THE INTERNATIONAL-16 is a high grade engine from stem to stern. It is carefully designed, accurately machined to close limits, and finished to equal engines of several times the price. And it runs beautifully—smoothly, quietly, powerfully, free from vibration, easy to start and easy to control because it is so flexible.

Stop and think whether you don't need one of these motors. Even if you have an old boat, you'll probably find it cheaper to buy a new INTERNATIONAL-16 than to have your old motor overhauled and repaired.

A season of service in all kinds of boats has demonstrated the excellent quality and great reliability of the INTERNATIONAL-16. You know it is made of the best of materials and is a design which will never be out of date. It is a big thing to know that you can always secure repair parts during the life of the motor.

OUR PROPOSITION FOR DEALERS AND BOAT BUILDERS

We don't have any trouble in selling these engines as fast as we can build them. However, we are always glad to extend our distribution into new territories. If the INTERNATIONAL-16 is not already represented in your locality, let us send you our proposition. It is a money maker for the live dealer and builder. Write or wire today.

INTERNATIONAL MANUFACTURING COMPANY
1435 Franklin St. Detroit, Mich., U. S. A.

EXPORT ORDERS

Our Export Department, located at 132 Nassau St., New York City, is in position to give particular attention to inquiries and orders from foreign countries. Data will be furnished upon request and we invite you to avail yourself of this service.

This engine makes a peculiarly desirable proposition for export due to its compactness, small original and shipping cost and also the fact that spare parts are available in practically any part of the civilized world.

New York—Sutter Bros., 44 Third Ave.

Service Station, Foot of E. 92 St., Brooklyn

Philadelphia—Marine Equipment & Supply Co., 116 Walnut Street

Newport News—Southern Shipyard Corp.

Seattle—Pacific Marine Engine Co., 906 Western Ave.

Jacksonville—Gibbs Gas Engine Co.

New Orleans—Stauffer, Eahleman & Co.

Portland, Me.—Scott Marine Motor Co.

Daytona, Fla.—Matthews Boat Works

St. Petersburg, Fla.—Ballard Bros.

Ft. Pierce, Fla.—Fort Pierce Machine Shop

Galveston, Texas—Steamship Supply Co.

Clayton, N. Y.—St. Lawrence River Motor & Machine Co.

Install an Electric Starter or Generator on Your Old Engine

You don't have to trade in your old engine for one of the new types with electric starter and generator. You can install a complete electric system at small expense by using this Bijur Starting Motor and Bijur Generator.

These instruments were developed under government supervision by the best electrical engineers, and built by the Bijur Motor Appliance Co., especially for the 400 H. P. 12 cylinder Liberty motors in the U. S. Army Tanks, Mark VIII type, costing the government \$90 a set.

Built for the powerful high compression Liberty Motor, it is certain that they have ample power to start any marine engine up to 400 H. P. In fact they have been successfully used on Frisbie, Standard, Speedway, Regal, Doman, Peerless, Kermath and other marine engines, and on Liberty, Hall, Scott, Mercedes and Hispano-Suiza aero engines.

See Our Exhibit at the Motor Boat Show, E. J. Willis Co. Booth, Spaces 83-84-85-86

BIJUR

Starting Motor

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Series U266M923



Clockwise rotation, with Bijur screw shaft drive, (like Bendix). 9" x 5½" with an additional 6½" for the screw shaft drive. Weight 34 lbs. 6 volts. To mount starter on a marine or stationary engine it is usually necessary to procure a Fly Wheel ring gear which are now made for all size fly wheels.

Write today for full details, references, etc. These instruments are all brand new. The supply is limited—when present stock is gone there will be no more at this price. So don't delay—

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Let your Service Station install this electrical system on your engine while your boat is laid up.

BOAT BUILDERS AND ENGINE DEALERS

There's good money for you in soliciting your customers for these installations. They also make your second hand and Rebuilt Engines easier to sell.

ENGINE MANUFACTURERS

We can supply your 1924 starter requirements at minimum cost if you act quick.

BIJUR
Electric
Generator
\$15.00
Series V106M1108
—TYPE L61



Clockwise rotation, 5/8" drive shaft with small flange mounting for gear or chain drive. If shaft drive with flexible coupling is required it can be readily mounted with strap, as there is no obstruction on the barrel or generator housing. Belt drive may also be employed, but is less efficient than other methods. Length overall 9 1/2", diameter 4 1/2", weight 18 pounds. 6 volts. Maximum output 23 Amperes at 2000 r. p. m.

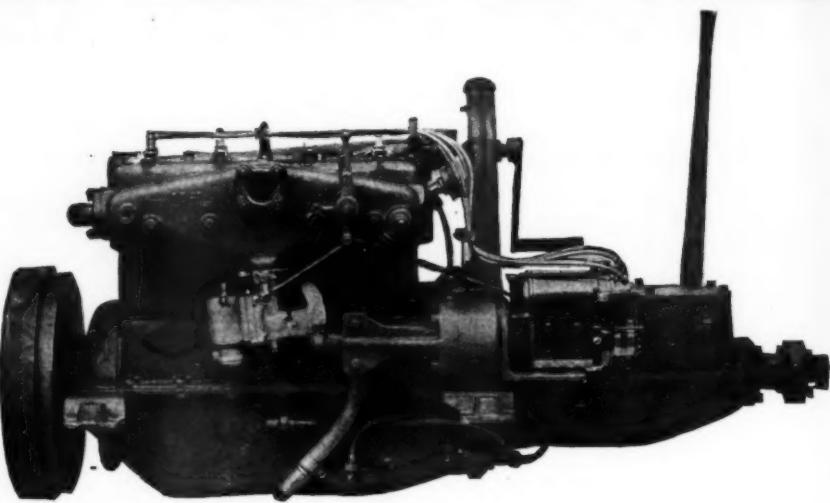


Buy this Motor on Our



Our 1924 output will all be equipped as follows:

N. J. M. Model 7.....	\$375.00
Covered Reverse Gear.	25.00
Never Falling Rear	
Starter.....	25.00
Magneto Equipment.....	15.00
1924 Model, fully equipped	\$440.00



No Guess Work Here!

Oil is pumped into metal troughs fitted under connecting rods. Troughs are always kept full of oil no matter what angle boat might toss to. Lubrication is always supplied on both ends of motor. With oil pressure gauge in front of you, you can always see that pump is working and that proper grade oil is being used. No guess work.

All the lubricating oil is passed through a water-cooled oil cooler which improves lubrication and reduces oil expenses.

Ready to Work When You Get Them

All the N.J.M. Motors are run under their own power for 14 hours before shipping. Where an N.J.M. motor is properly installed, it is ready for work. No running in is necessary.



WE have not only produced a wonderful little motor in the N. J. M. Model 7 for 1924, but we have made it easy for every boat lover to have a good engine in his boat. By our new Easy Payment Plan you can buy a brand new N. J. M. with a smaller down payment than for a second hand or rebuilt engine,—and pay the balance over a period of several months while you are using the engine.

Furthermore we have proved that the N. J. M. is so economical in fuel consumption that the saving in gas compared with most other marine engines of the same power will actually pay for the N. J. M. in part of one season. Perhaps your old engine would run another year, but why put up with all the bother and expense when you can save money by getting a new N. J. M. right away.

You wouldn't hesitate to buy a piano, sewing machine or any other expensive household article on time payments. We predict the result of this first announcement of our new plan will bring us all the business we can handle. So if you are interested, don't delay—write us about it at once.

The price of the N. J. M. is \$440 *completely equipped*. Last year we listed the engine only at \$375 but we found that 90% of our customers required the complete engine equipment so the 1924 price includes Covered Reverse Gear, Never Falling Rear Hand Starter and Magneto as well as carburetor, water pump and everything else ready to run. Remember this when you compare the price with others.

Any Leakage of Gas Is Turned Into Power Lubrication Starts at First Turn of Motor

Specially designed hot air intake takes any gas fumes that might get by pistons and uses them again through the carburetor. All the power in the gas is utilized—producing practically 100% efficiency in N.J.M. Motor.

We found it necessary after years of experimenting, to use a double jet adjustable carburetor to provide high and low speeds and to make possible proper adjustments to meet climate conditions. You can get slow boat speed without stalling engine, and run smoothly in any climate.

Location of oil pump below level of oil in crankcase provides instant priming in N.J.M. Motor.

When oil pump is placed above level of crankcase oil—this applies to gear pumps which are really the only type of pumps absolutely reliable—the motor runs temporarily, without proper lubrication—because priming cannot take place instantly with pump located above oil level. The N.J.M. Pump, located below oil level in crankcase, provides lubrication as soon as motor is turned over.

And this oil pump is really accessible.

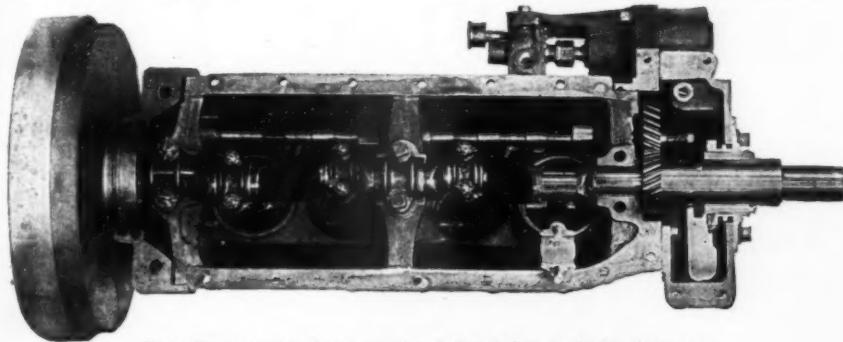
By taking out one screw—disconnecting two oil pump connections—and dropping pump down $1\frac{1}{2}$ " it can be easily removed for repairing or cleaning. There is plenty of space between stringers and reverse gear to get at screw.

Boat Builders and Engine Dealers

If you haven't tied up with the N.J.M. franchise—get aboard the band wagon NOW. The going is GOOD, and it's a steady profit building line from every angle.

New Jersey Motors, Inc.

Easy Payment Plan



Note the up-to-the-minute marine designed four main bearings on the crankshaft of our N.J.M. motor. The rear bearing through which the full power is transmitted is $2\frac{1}{4}$ inches in length. The shaft is 2 inches in diameter. This is marine construction—not automobile design.

THE N. J. M. is a first class four-cylinder four-cycle engine of genuine marine type—not merely a rebuilt automobile motor but a real marine design in which we have made the essential parts interchangeable so that the N. J. M. owner can get new parts and expert repair service promptly and economically from any Ford Service Station. As the Ford Service organization covers the world and their parts never become obsolete, this N. J. M. feature could never be equalled by any strictly marine service organization.

Study N. J. M. construction and you will see many points of difference from automobile motor design—all typical marine practice. Extra large main bearings, positive lubrication, hot spot manifold, enclosed reverse gear and many other advanced features, several of which are exclusively N. J. M. designs.

Prompt Deliveries—but Don't Delay

Nothing is more exasperating than to order a new engine and then have your boat laid up for several weeks longer than you expected because the delivery is delayed. We know many buyers and dealers who have had this trouble—but not with the N. J. M. We have a real factory which has been in production on this motor for several years. We keep it running full time winter and summer and try to keep a stock for immediate shipment. But in the spring nearly everyone wants his motor delivered at the same time. For your own protection, we advise you to place your order as early as possible for later shipment.

The Water Pump Can Be Removed Without Disturbing Ignition

By removing two cap screws and disconnecting two hose connections you can pull the pump out without trouble and *without disturbing the ignition in any way*.

Your pump can be replaced in a few minutes, after repairing it, and no retiming is necessary—removal of N.J.M. pump does not throw out timing.

The importance of this feature is too far reaching to need further comment, except

that most ignition systems are put on at end of pump shaft.

In that case, when anything happens to your pump thru sand, dirt or some foreign matter getting into it—and your pump shaft breaks—then your ignition system goes, too. Usually an expert is needed to retime the motor. The removable feature without disturbance of ignition or timing is simply another demonstration of N.J.M. advancement.

Write today for details of our Easy Payment Plan

We'll be glad to send you the details together with our catalog, and answer any special questions you ask.

Keyport, New Jersey, U. S. A.

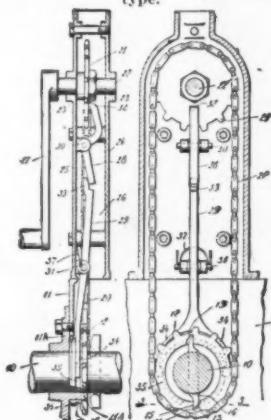
Cable Address: "Nujermo" Keyport



The ignition gears are enclosed. The water pump is very easy to get at. The hand starter sprocket is on outside of bearing—no moving parts when motor is running.

This Hand Starter converted the sceptics

It has no revolving parts—no ratchets, pawls or roller clutches to rust up over winter or when the boat is laid up. No parts are engaged when motor is running. This Hand Starter is designed into the motor and its chain is always covered with a spray of oil. It cannot rust. It cannot stick. It is the most efficient and practical Hand Starter ever devised for a marine engine of small type.



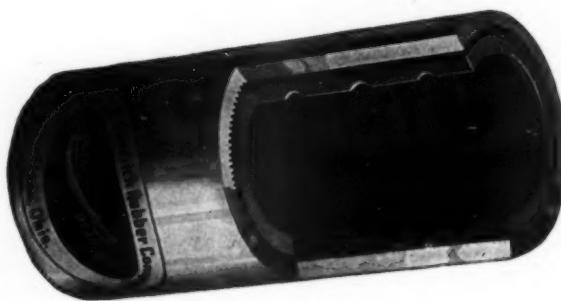
One quick lift of Hand Starter starts the engine. No straining or tugging necessary. By turning handle and pressing forward—the lower sprocket is thrown upward into engagement with hardened steel pin in main shaft. As motor turns—the pin kicks back lower sprocket and leaves the parts free. Always oiled—it always works. No moving parts when motor is running. A simple device but a truly remarkable aid to the boat-owner.

Hot Spot Manifold

There is a hot spot between one-piece exhaust and intake manifold. There is no hot water between the two manifolds. The exhaust heats metal on one side, and cool gases, coming in on the other, reclaim heat promptly. This is absolutely necessary with low grade of fuel obtainable today. Another N.J.M. point of efficiency.



NO MORE SHAFT SCORING



Owners and builders of tugs, motor boats and launches have solved their bearing troubles with the Cutless Bearing.

Its tough Olivite Rubber surface absorbs vibration, prevents shaft scoring and gives longer bearing life. Much superior to the ordinary type metal bearing—it merits your closest investigation.

Write for data.

THE B. F. GOODRICH RUBBER COMPANY, *Akron, Ohio*

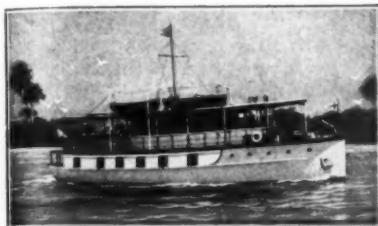
Goodrich CUTLESS BEARING





MATHIS YACHT BUILDING CO.

The Center of Interest in Florida



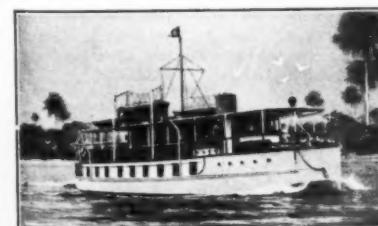
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87-FT. PILGRIM
Mr. Wm. M. Elkins, Philadelphia, Pa.

Since 1910

Mathis Built Houseboats

have held the center of the stage in every Florida season. Have been the choice of men who know, like

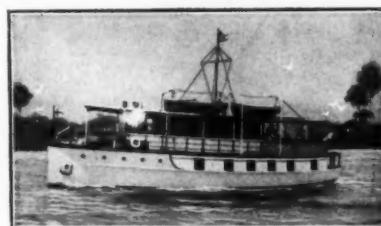
L. H. and A. W. Armour and Jas. Deering, of Chicago;

Henry W. Savage, Murray Guggenheim, H. N. Baruch, Arthur Curtiss James, and W. J. Matheson, of New York;

Wm. M. Elkins, Chas. B. Prettyman, Clayton G. Dixon, Louis Burk, Arthur Block, and D. H. Carstairs, of Philadelphia.

—and other discriminating purchasers who can afford the best.

The 1924 season will see a notable fleet of Mathis-built Houseboats, a portion of which is shown by the illustrations on this page.



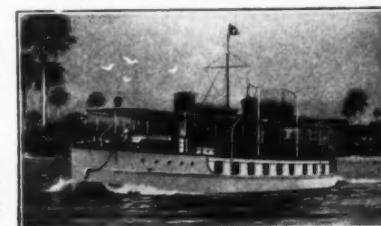
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Mr. W. G. Selby, Sarasota, Fla.



85-FT. LUNETA
Col. S. C. H. Slocum, Washington, D. C.

When in Florida, look for the latest Mathis-type houseboats—with the new-type yacht stern—just another of the improvements that keep us further ahead for 1924

Mathis Yacht Building Company

Specialists in Houseboats and
Cruisers from 40 to 120 ft.

Coopers Point,
Camden, N. J.

HOUSE BOATS



AND YACHTS

HEATH ELECTRIC SIREN

A SCIENTIFIC ACHIEVEMENT IN WARNING SIGNALS

Type H, Form D, for Motor Boats, Yachts and House Boats



Type H, Form D
Operates on 6 or 12 volt
storage battery.
Length, 15½".
Width, 8".
Shipping weight, 25 lbs.
Price, \$125.00, f.o.b. San
Francisco.

Heath Sirens are used throughout the world for fire station alarms, fire apparatus warning signals, police patrols, ambulances, banks, factories and wherever a durable and dependable signal of high power is required. We manufactured the signals for the British Government to warn the population when Zeppelins approached during the war.

THE most powerful and penetrating marine signal on the market. Its distinctive note is instantly heard, recognized and obeyed at any distance up to one mile or more. Sounds instantly and its warning is unmistakable.

The Heath Siren is a signalling instrument of the highest quality and the finest type of construction. It is weatherproof and never fails.

The boat owner who provides this signal on his boat may be sure that he not only complies with the navigation law but that he will get the right of way quickly and secure the best protection for his boat against danger of collision in crowded or noisy harbors.

Write today for catalog

HEATH ENGINEERING LABORATORIES, 114 Sansome St., San Francisco, Cal.

Eastern Representatives:

Robertson & Malcolm, Ltd.,

149 Broadway, New York, N. Y.

A Clever Test

A unique display is being made by Edward Smith & Company, the varnish makers of Long Island City, at their exhibit. This consists of a wire mesh box coated with their brand of Aquatite varnish. Inserted in this box will be found two electrical heating elements which will keep the water contained in this box at a boiling point throughout the entire period of the show. The varnish alone serves to hold the boiling water in the box, as it is made up only of the open wire mesh. This is probably the most severe test which has ever been made on a varnish, due to the large open meshes in the wire screen.

Gray Engines in Japan

As a result of the satisfactory service rendered to the Military Department of the Japanese Government by Gray engines furnished them some years ago, additional orders have been received immediately after the earthquake for additional engines to be supplied at once. The confidence in the Gray Marine Motor Company, which the Japanese Government has shown speaks well for American products and all haste has been made in shipping the engines called for. These machines are required for the operation of pumps for sanitary and fire protective services, and are called upon to work for long periods of time without stopping.

Topping Brothers' Display

Among the attractive exhibits on the mezzanine floor of the Motor Boat Show will be found that of Topping Brothers, the heavy hardware dealers of New York. Their exhibit takes the form of a cabin interior with a complete display of suitable types of ship joiner hardware in actual use. The educational value of this display is large, as it enables the visitors to observe the correct installation of the many fittings.

Runabout On Exhibition

The Boat Department of the Sound Machine Shop, Inc., of Mamaroneck, N. Y., have brought down to the show a little runabout of 22 feet in length, which is equipped with a four-cylinder 30 h.p. Buffalo engine, which it is expected will do about 16 m.p.h. In addition to this boat a smaller one of only 16 feet in length will also be shown, which is provided with a two cycle Barker engine of 5½ h.p., which drives this boat 8 miles. These boats are sturdily built and their lines are sea-

worthy enough to make them steady and comfortable in bad weather. They are a suitable craft for all around service.

Cadyfords Are Popular

One of the attractive exhibits at the Show is that of the full line of Cadyfords and two cycle engines. The newest Cadyford is the feature of the exhibit, and it is entirely enclosed, including the fly wheel. The Bendix drive for the starting motor is also housed and protected. The engine is furnished complete with magneto ignition, two-unit starting ignition, and the built-in reverse gear. The sales of Cadyford engines is expanding and it is interesting to note that dealers in many new localities are eager to secure the representation for this machine. Representative dealers in all sections of the country are enrolling under the Cady banner, and big business is resulting.

Elto Exhibits Many Motors

At the display of the Elto Outboard Motor Company can be found a dozen or more of their regular motors, in addition to several cutaway models to show the construction. Also they are showing an 18-foot round bottom boat, which however is not to be sold, but used merely to create a desire on the part of the Show visitors to become participants in the great sport. This boat will have all of the conveniences as a launch, and will be equipped with a standard Elto engine. The plans for the display will make it very attractive, the central feature being a display board of parts of the engines. The new inboard engine will also be shown, mounted on a stand in a similar manner to the way it would be mounted in a boat. As a measure of decoration in and around their display, the company will show a number of very beautiful photographs enlarged, to show the advantages of their little engines.

An Office At The Show

Due to the fact that the plant of the Gordon Boat Building Company is only a short distance away from the exhibition building, this company is not displaying a boat but has moved its office to the Palace for the period of the show, where they will be glad to talk boats with all those interested. Any one who wishes to make a closer examination of their boats, will be escorted through the plant, and given an opportunity to see the boats in course of construction and in completed form. It is of interest to learn that this company is planning to enlarge its plant, and has already located a site which will give them more than double their present capacity.

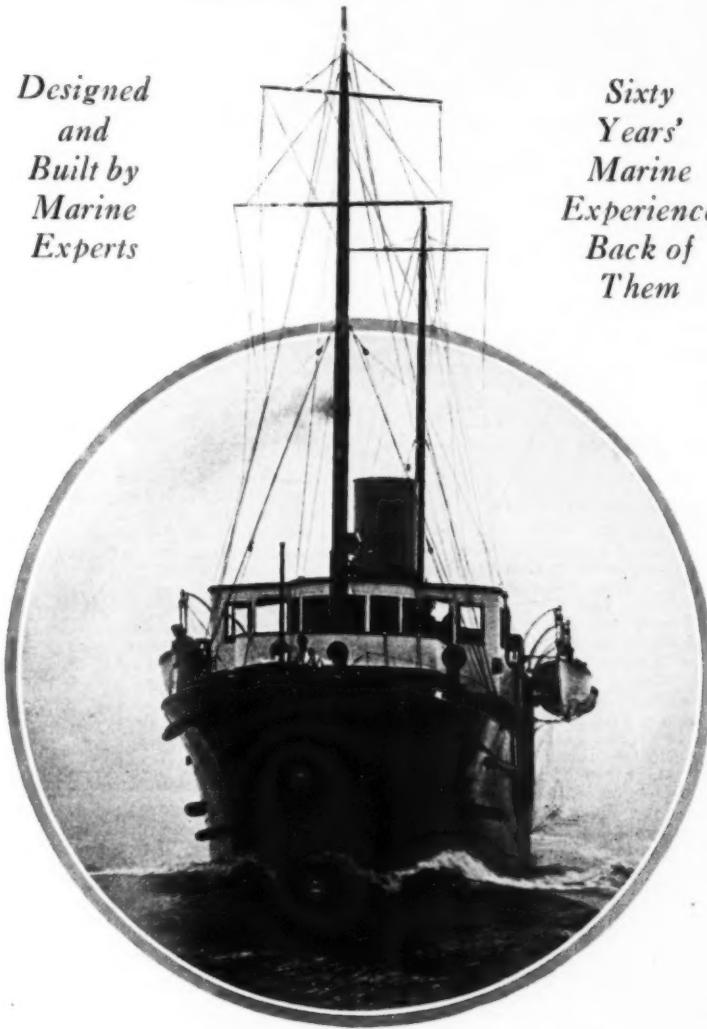
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DEPENDABLE MARINE AUXILIARIES

FOR YACHTS AND MOTOR BOATS

*Designed
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*Sixty
Years'
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HAND and ELECTRIC WINDLASSES
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 ANCHORS — CLEATS — CHOCKS

Write for Yacht Section—Catalog 21. It gives descriptions and prices

AMERICAN ENGINEERING COMPANY

2419 Aramingo Avenue

:-: :-:

Philadelphia, Pa.

What's Her Speed?

By J. Lee Barrett

THE list of runabout and yacht owners in practically all parts of the United States today presents the appearance of a volume of Who's Who in America, both socially and in industrial leadership. A very large percentage of new recruits in the sport has been since the war.

There are, of course, many reasons assigned to this increased interest and devotion to boating. Among them, increased per capita wealth, enabling more water sport lovers to own boats; making the use of the automobile on the roads a business and not a pleasure on account of the congestion and danger of motoring, and drastic regulations, leaving the call of the broad expanses of clear blue water with no speed limit.

There is another reason that has been responsible for adding hundreds of runabouts and cruisers to the nation's rapidly increasing fleet, and that is the entrance of the aviator, with his knowledge of engines obtained during his service in the air service in the world's war.

A most significant development is gradually taking place in the boat and engine building industry, and is an indication possibly of the nervous, high tension trend of the nation being reflected in the demands of the individual for more speed. During the past season the writer has made a trial trip on ten different new boats constructed by different boat building companies in various sections of the country, and, without exception,

the most interesting subject to every one from owner, builder, guest and designer was, What's her speed?

What's her speed? comes first in most instances; and even owners of heavy cruisers have fallen into line and added a little more speed to their wheel.

To meet the requirements and demands, designers and engine builders are writing into their efforts, designs and construction that will develop more knots per hour.

Naturally, one of the requisites in addition to the design of the boat is that of the engine. The marine engine builder and the automobile engine designer has learned much from the airplane engine designer, who are not so r.p.m. enthusiastic as their auto contemporary, nor so insistent upon tradition as the former, but has brought into the science designs to meet modern requirements.

The general result has been to stimulate greater interest in motor boating. This has been reflected particularly in the increased activity in business of all boat-building concerns who have not enjoyed such a spurt of business since the war. The owner of a motor boat or yacht stimulates a desire on the part of his friends to likewise acquire a boat of a type which suits his fancy, and I believe that 1924 will see the biggest boat and engine building year in the history of the sport and industry.

A Portable Light

Among the accessory exhibits will be found a compact electric spot light which operates from electric current derived from the storage battery. It is claimed that this lamp made by the Portable Light Company of New York will give a ray of 300,000 candle power and will illuminate an object at a distance of one-half mile. These lamps are made entirely of brass and are attractively finished to harmonize with the other fittings of a boat.

A New Light Weight Twin

Palmer Brothers, the marine engine builders of Cos Cob, Conn., who build today perhaps the most extensive line of marine engines have added another model to their family. This little machine is called the YT2 and is designed for the small boat owner. It will develop from 4 to 5 h.p. and is a two-cylinder, four-cycle unit operating with overhead valves. The cylinder castings are individual with detachable heads, and an efficient oiling system combines force feed and splash. The crankshaft is counterbalanced which eliminates all vibration. Ignition is by means of a high tension magneto, fitted with an impulse coupler which insures easy starting. Its weight is about 260 pounds, including the reverse gear.

In addition to this little machine, some twenty odd other engines which this company builds will be shown. Seventeen of these will be of the four-cycle type, while only three will be of the two-cycle type. The horse-power range of these will run all the way up to the six cylinder 75-80 h.p. heavy duty machine. Their exhibit will be in the same corner of the show floor which they have occupied previously.

A Sturdy Motor

The four cylinder 15 h.p. engine which the New Jersey Motors Inc., are building at Keyport, is a substantial little job which uses for many of its parts interchangeable parts, which can be secured from any Ford service station. This machine is fitted with a hand starter, which is designed into the motor and which is always operating in oil. It is the most efficient hand starter ever devised for small engines. The new models are all equipped with an enclosed reverse gear, hand starter, and magneto equipment. The exceptionally low price at which these motors are offered make them a good buy for any whose power demands are moderate. Lubrication of these engines is accomplished by an oil pump, located below the crank case oil level, so that it is always ready to operate the moment the motor moves.

See the Baby Doll

On the main floor of the Motor Boat Show you will find in Block C a display of engines brought on by the Red Wing Motor Company from Red Wing, Minn. They are showing seven different sizes of engines, which include their models K, KK, D, A, AA, F, and B. These machines are one, two, and four cylinder units, ranging in size from the small single cylinder of 4-5 h.p. up to and including the 32-40 h.p. engine. The machine which is especially featured

is the 10-14 h.p. Thorobred Baby Doll, which is a light weight four cylinder unit with a 2 3/4-inch bore and a 4-inch stroke.

Scientific Carburetors

For the best results with a marine gas engine, the motor boat owner should realize that the accessory items are responsible in great measure. The carburetor is one of the most vital elements, and the Schebler model's for the marine engines are built to meet the exact requirements of the engine to which they are applied. The maximum performance of the engine is assured and the precise amounts of gas required are provided continuously. All Wheeler-Schebler service stations are equipped to co-operate with boat owners for prompt service.

For Filling Seams

For a permanent material to seal the joints of the deck plank and other similar places on shipboard, an elastic seam composition is manufactured by H. B. Fred Kuhls of Brooklyn, N. Y. This material is prepared in several different forms and colors. The general favorite is black, although it is also furnished in white. Another product which is very serviceable is their elastic white yacht paint.

Leviathan Shown in Painting

A painting of unusual merit by the well-known marine artist Fred J. Hoertz will form the central attraction at the exhibit of L. W. Ferdinand & Company. The central figure of this picture is the Leviathan coming through the harbor from the Narrows, between Bay Ridge and Staten Island. The scene is so studded with conditions of everyday life in the Bay, as to give a feeling of familiarity to anyone who is at all acquainted with the shipping life of New York Harbor. The details are complete: a Dalzell tug, a sand barge, with the inevitable dog, an Old Dominion liner going out, a Shipping Board tug, and a Moran tug. The display of this painting in connection with the exhibit is particularly appropriate, in view of the fact that more than 16,000 pounds of Jeffrey's marine glue were used in refinishing the deck seams of the Leviathan. At the display are shown each of the various grades and their method of application. Representatives of the company will be on hand to answer any questions regarding the application of their product.

Propeller for Leviathan

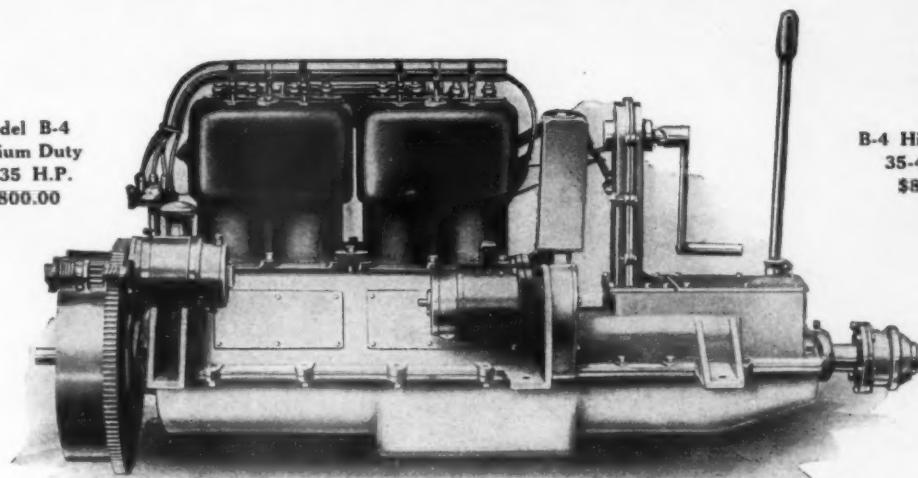
A new propeller for the steamship Leviathan was recently cast and finished by the Hyde Windlass Company at their foundries in Bath, Maine. This wheel was an enormous solid bronze propeller of 16 1/2 feet in diameter and which weighed when completed a matter of 40,000 pounds. While this is not the largest propeller made, it is believed to be the heaviest solid bronze wheel ever cast. Larger wheels are made on the built-up style in which each blade is cast separately. This wheel is bored for a 20-inch shaft and one of the smallest wheels made by this company, of 8 inches diameter, could easily be lost in the shaft hole of the larger one.

BRENNAN

STANDARD

Model B-4
Medium Duty
25-35 H.P.
\$800.00

B-4 High Speed
35-40 H.P.
\$800.00



Announcing the Greatest 1924 Marine Motor Value

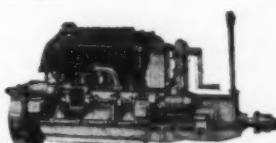
With the standard model M-4, the new B-4 series and the two new 6 cylinder models, the BRENNAN line for 1924 is the most attractive and complete offered by any marine engine manufacturer. The different models cover power requirements suitable for every size and type of pleasure craft, fishing boats and work boats.

Our 27th Successful Year

Model "60"—60 h.p., six-cylinder, 4" x 5½"; weight 900 lbs.; normal speed 1000-1800 r.p.m. Ignition, Bosch magneto. Carburetor, Zenith. Lubrication, pressure through hollow crank shaft. Starting system, Bosch electric.

Model "100"—100 h.p., six-cylinder, 4½" x 6½"; weight 1500 lbs.; normal speed 1000-1800 r.p.m. Overhead valves with overhead camshaft. Equipment, same as Model 60.

The Brennan-Standard has always been a quality motor. One of the oldest makes of marine engines on the market, we have never offered a model that did not come up to the standard of power and reliability required for real boat service.



M-4, 17-20 H.P., 25-30 H.P.

Write today for our latest catalog and prices. You'll have a pleasant surprise when you study Brennan design and specifications, then compare the prices with other marine engines of equal power and quality.

SPECIFICATIONS NEW B-4 SERIES
MOTOR—4 cyl., 4 cycle, bore 4½", stroke 5" piston displacement 318.1 cu. in. POWER—Medium duty 25-35 H.P. High speed type 35-40 H.P.

CRANE CASE—Equipped with four hand hole plates, two on a side making motor very accessible.

CRANK SHAFT BEARINGS—2½" diameter.

CONNECTING ROD BEARINGS—2½" diameter.

PISTON PIN BEARINGS—Bronze 1¼" diameter.

REVERSE GEAR—Multiple disc type.

LUBRICATION—High pressure thru a drilled crank shaft.

STANDARD EQUIPMENT

STARTER—Two unit Bosch and emergency rear starter.

IGNITION—Bosch magneto or Atwater Kent—both can be supplied.

CARBURETOR—Schebler.

PROPELLER WHEEL—Hyde or Columbia.

WIRING—Buyer's option—flexible or range.

OPERATION—Motor operates at any reasonable angle.

Starting box, control levers, spark plugs, wiring, in fact everything required for a complete installation.

BRENNAN MOTOR MFG. CO.

500 East Water Street, Syracuse, N. Y.

Cable Address "Binot"

A New Standard of Performance



Less than three years ago L. J. Johnson offered the outboard motors. Johnson believed that a practical, boating enthusiast a new *Standard of Performance* in dependable, light-weight outboard motor would find a larger response from the boating public than any one had ever guessed.

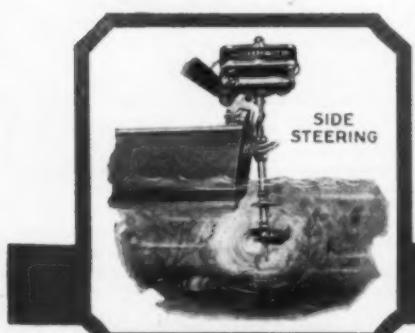


Your Johnson will reverse the boat in almost a length



Underwater obstructions hold no terror to your Johnson

A picture story of Johnson Performance follows:



The quickest, most positive steering. No rudder required



This shows how your Johnson's power is concentrated behind the propeller



Without this Johnson feature, the power is dissipated, as illustrated above

-that has made the use of Outboard Motors universal

Johnson was Right

Starting from scratch, in less than three years the Johnson Outboard Motor has become the leader in its field: in 1923 more Johnson Motors were sold than motors of any other make. The reason for this growth can be stated in one word—

Performance is what counts

Thousands of enthusiastic owners have proved to themselves that the Johnson Motor is:

The lightest, liveliest, most flexible and efficient outboard motor obtainable—

Its guaranteed dependability, flexibility and power have been ingeniously condensed into the delightfully light weight of

- 1—it is absolutely dependable
- 2—the easiest motor to start
- 3—the easiest to handle
- 4—the most flexible in operation
- 5—the simplest motor made
- 6—the most durable motor
- 7—applicable to every type of small boat or canoe.

35 Pounds



YOUR JOHNSON WILL NEVER DISAPPOINT

You will find in the Johnson Motor a *practical* means of water transportation—a motor with the faculty of starting when you want it to and running until you want it to stop.

Get into a boat and see for yourself—the Johnson dealer will be glad to demonstrate for you. Write us for his name and address—and if you attend the *Motor Boat Show*, Grand Central Palace, New York City, January 4th to 12th, be sure to see the Johnson Motor.

JOHNSON MOTOR COMPANY, 860 Sample Street, South Bend, Indiana

Eastern Distributor: Johnson Motor Co. of New York, 4 W. 61st Street, New York City, N.Y.

Canadian Distributor: Peterborough Canoe Company, Peterborough, Ontario

Johnson

THE LIGHTEST, LIVELIEST BOAT MOTOR ON THE WATER.

MORE SPEED GUARANTEED



*1 to 3 Miles Per Hour
Increase Guaranteed*

*Our standing guarantee
for 22 years*

*Not a gamble
but a guarantee*

*Now made of
Steel Bronze
A New Metal*

*Strong as steel—
Can be forged—
Non-corrosive—
Will not crystallize*

B & B SPEED PROPELLERS—

THESE famous wheels which have been on the market 22 years have increased the speed of thousands of runabouts, cruisers and work boats one to three miles per hour. And this increase in speed results simply from a new degree of propeller efficiency, without any increase in fuel consumption or any increased load on your engine.

The efficiency of the B & B design merely transforms into useful driving thrust all the engine power which inefficient propellers waste in useless thrashing and churning of the water. The blades are made with a differential pitch and a concave curve from the hub to the edge of the blade. The outside driving edge is at least seven degrees aft of the forward face of the hub. This avoids the air pocket in the forward side of the wheel, reduces slip and makes the driving side

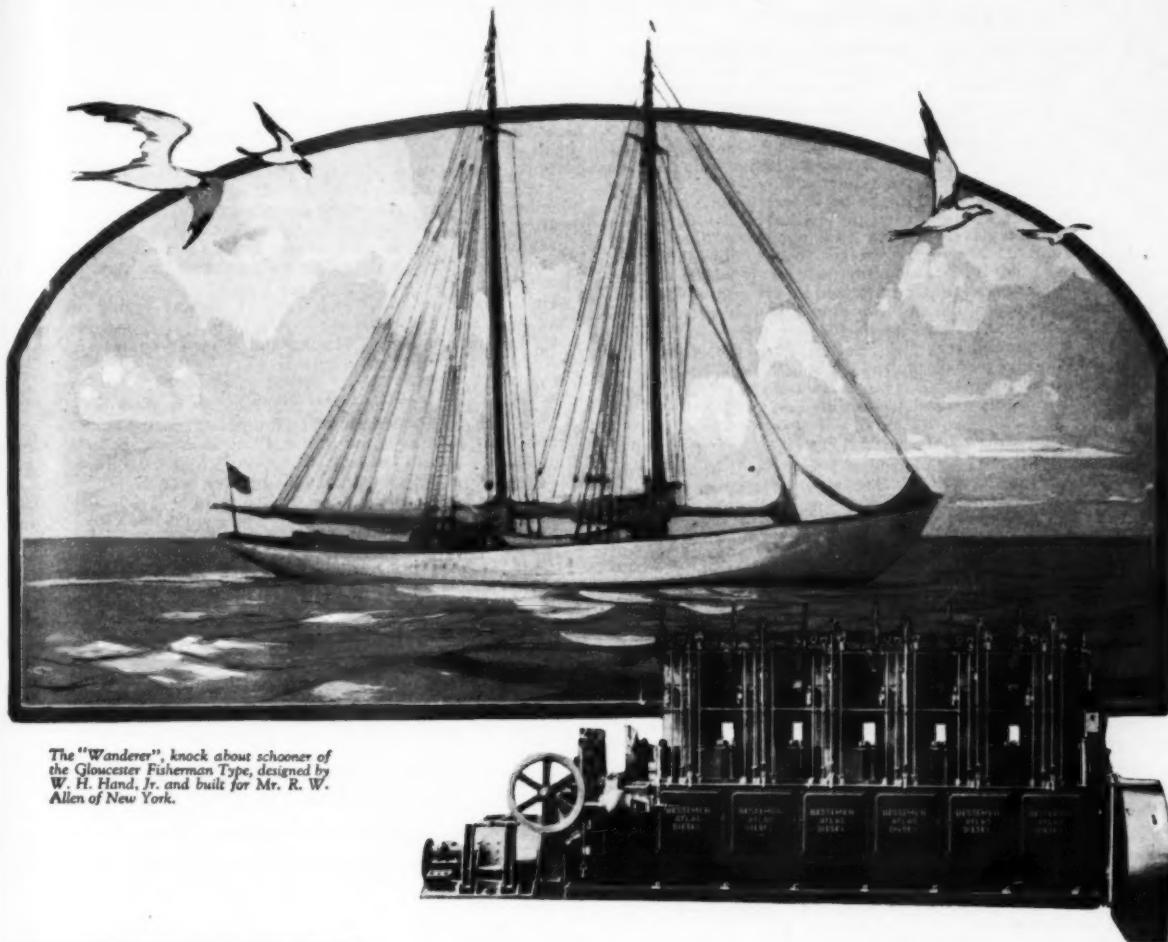
work all the time. It is the same as the advantage of the spoon oar over a straight oar. . Made in all sizes up to 36" diameter of Steel Bronze, the finest propeller material ever discovered, lower in price than any other good wheel—and better, as the guarantee proves.

We also make Weedless Speed Propellers, Turbine Type (true screw) and Special Towing Wheels. If your dealer can't supply you, write us for prices.

Dealers and Boat Builders: We offer a liberal agency proposition. Write us for it

BRYANT & BERRY PROPELLER CO., 1202 Lillibridge St., Detroit, Michigan

New York Representatives: E. J. Willis Company, 85 Chambers St.
Canadian Sales Agents: Canadian Fairbanks Morse Company



The "Wanderer", knock about schooner of the Gloucester Fisherman Type, designed by W. H. Hand, Jr. and built for Mr. R. W. Allen of New York.

For every heavy duty marine requirement there is no better engine than the Bessemer Atlas Diesel.

It has been built and perfected over a period of thirty years and numerous installations bear witness to its highly satisfactory service.

The Bessemer Atlas Diesel is built in three, four and six cylinder styles from 50 H. P. to 1,000 H. P. It is of the four cycle type, designed with the greatest simplicity and built with extreme ruggedness throughout. Year after year under the hardest kind of service they do their work—trouble-free and economically.

The Bessemer Atlas Diesel Engine employs the Airless Injection method which eliminates the troublesome high-pressure air compressor for injection, and gives a positive oil injection at exactly the right time.

For economy and dependability of operation we honestly believe the Bessemer Atlas to be without a peer in the Diesel engine field.

Stone Cold to Full load in 10 Seconds!

THIS is not a fluke accomplishment but a feature that all Bessemer Atlas Diesel Engines can be relied upon to do—always.

This perfected marine power plant is noted for its dependability of operation under all conditions, however gruelling they may be.

Simplicity, sturdy construction, and utmost economy set the Bessemer Atlas Diesel Engine apart from the ordinary engines and make it the ultimate marine motor.

Thirty years of continuous experience plus one of the largest oil engine organizations in the world are your guarantees of 100 per cent. performance.

There is a size and style of this perfected power plant to meet your requirements exactly. Whether your need is for a three, four or six cylinder engine—for 50 H. P. or 1000 H. P., there is a Bessemer Atlas Diesel that will give you the economical, reliable service it is giving numerous others.

Write for descriptive literature—and let us prove the superiority of the Bessemer Atlas Diesel Marine Engine.

THE BESSEMER GAS ENGINE COMPANY

Lincoln Ave.
50 Church St.

Grove City, Pa.
New York, N. Y.

Also manufactured on the Pacific Coast by The Atlas Imperial Engine Co.,
Oakland, Cal.

BESSEMER

ATLAS DIESEL

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating, 119 West 40th Street, New York

A Fishing Cruiser

The Greenport Basin & Construction Company are showing in space A-5, a 34-foot fishing cruiser and a 28-foot runabout. These boats are very substantial craft, and are designed to give moderate speed and still keep the sea in any weather. In the cruiser has been installed a Scripps E-6 which gives speeds up to 16 miles. A large cockpit is well suited for fishing purposes and underneath the bridge deck will be found the motive power. One of the features of this cruiser is the light draft of 2 feet 2 inches. This makes it ideal for Florida use, and indicates the care with which it has been developed for this purpose. The utility runabout which is shown is similar to the one shown in previous years and is a thoroughly safe craft. The cockpit is fitted with large wicker chairs which are more comfortable than an automobile and the speed is proportioned to provide a reasonable cost and fuel consumption. The Scripps E-4 engine drives the boat at 20 m.p.h. while the Kermath 35-50 gives 19 m.p.h., with about 4 miles per gallon of fuel. This is a most efficient standardized product, and can be appropriately called a marine car.

On Marine Glue

Representatives of L. W. Ferdinand & Co. will be at booths Nos. 69-70 at the New York Motor Boat Show, ready to answer the eternal question, "How can I make my boat leakproof?"

There will be exhibited a full line of the various grades and colors of Jeffery's Marine Glue and some new lines not previously shown the public will be announced.

An old dory, rejuvenated by the use of Jeffery's glue and unbleached cotton, will be there for inspection. Each step in the process is clearly illustrated and can be easily understood.

Their space will be in charge of August Schlueter of Rockville Centre, L. I., their New York Representative, who is well qualified to give advice on the application of the many grades of Marine Glue for stopping leaks.

Think up all your problems; make note of them and settle them while at the Show.

Yachting Apparel

The increasing necessity for the proper apparel to go with every sporting activity requires that the well dressed yachtsman provide himself with suitable clothing. The firm B. Schellenberg & Sons, in Brooklyn, for many years specialists in clothing of all kinds, are making a specialty of clothing for the yachtsman and his crew. It makes no difference whether the boat is in yacht or commercial service, complete outfits for the mariner are always available.

Electric Equipment

In connection with the Show Exhibit of the E. J. Willis Company, the General Sales Company of Chicago will display samples of their Bijur starting motors and electric generators. These units are being sold at a remarkably low cost, and are some of the equipment which was prepared during the war period for service in big military tanks which were not completed, however, due to the termination of the war. These units are brand new and of exceptional power. They are designed to operate at six volts.

Steering and Engine Controls

The display of the W. S. Hall Company, Rochester, N. Y., will feature many types of steering and engine controls which this firm manufactures. Among these will be seen an electrically operated reverse gear control which operates from a remote point on the bridge. This device takes its current from a six volt storage battery supply and is powerful enough to operate any size gear on any size engine. A flexible cable connects the bridge deck station to the control in the engine room which makes a simple installation, as no allowance need be made for cutting bulkheads and cabin arrangements. Other specialties are also shown.

An Auxiliary Ketch

Among the boats down on the main floor of the Show will be found an attractive little auxiliary of 26-feet in length, built by the Casey Boat Building Company of Fairview, Mass. This boat can be rigged either as a sloop or ketch, and is a very complete and sturdy little job. A six-horse-power Palmer engine is installed, which operates through a feathering propeller, so that when the engine is idle the propeller blades will offer a minimum of resistance to being dragged through the water. This boat has ample cruising accommodations and is capable of extended trips. The construction throughout is unusually substantial.

New Outboard Models By Skaneateles Boat

The Skaneateles Boat and Canoe Company are this year featuring, in addition to their 16-foot outboard motor boat, a 14-foot model. This is just the thing for those who want a boat that is equally serviceable under oars or power. It is of light, but strong construction and is remarkably roomy for so small a craft.

This company has also placed on the market a 15-foot lap strake cedar canoe. This lap strake construction—with the planking selected with same care as in the Skaneateles row boats and outboard motor boats—makes the canoe much more durable than a canvas covered one, but no heavier. This model is trimmed with mahogany and finished in spar varnish throughout.

The Skaneateles Boat and Canoe Company builds the most complete line of small boats in the country. It includes row-boats for every purpose, rowing and power dinghies and small sail boats.

Boat Builders' Needs

This year's Tiebout exhibit at the Motor Boat Show demonstrates more than ever the intimate knowledge of boat-builders' and owners' needs possessed by this long-established firm. Visitors to Booths 19 and 20 will be welcomed by the Tiebout personnel. There will be in attendance John Tiebout Sr., John Tiebout Jr. and Messrs. Carlin, Devereaux, Gillespie, Korn, Linsley, Morrissey and Schult.

Mullins Steel Boats

As a material for small boat construction, steel is unsurpassed. Particularly is this the case when it is possible to form and shape the plates in large hydraulic presses, so that they are correctly bent to give the proper lines to boats. Joints between steel plates can be welded by the electric process, so as to make the boats absolutely leak proof and tight. The addition of built-in air tanks at the forward and after ends renders the boats proof against sinking, even though they are entirely filled with water. The Mullins Body Corporation of Salem, Ohio, have been for years the exponents of this method of boat building. Their boats are thoroughly standardized and are produced in large quantities in a plant equipped with all modern machinery and appliances for doing this work. These boats are, by reason of their construction, entirely warp proof and cannot dry out. The smooth exterior of the steel hull enables the boats to be propelled easier and produces a faster boat for the same amount of power. The frame of these boats is built up on a heavy oak keel with steam bent ribs, while the steel plate hull is of a heavy gauge, puncture proof plate. A special boat 14-feet in length has been gotten out for use with an outboard motor, which sells at a very moderate price. Also there is an 18-foot launch with a built-in engine, which makes a very attractive boat for all general purposes.

Galvanized Fuel Tanks

All items of marine hardware and tanks, etc. should be of non-corrosive materials, particularly where used in and around salt water. The firm of L. O. Koven & Bro. of Jersey City are specialists in the construction of galvanized fuel and water-tanks of regular and special sizes. They have a marvelously equipped galvanizing plant, where all products are hot dipped and thoroughly coated. Their equipment is equal to the galvanizing of the largest possible tanks and fittings used on small boats, and the tanks which they prepare particularly for boat service are tested to withstand high pressures.

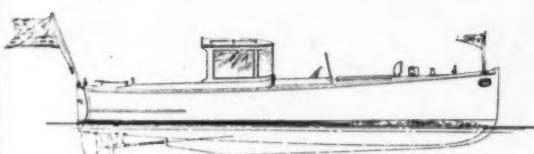
High Tension Magnetics

Spaces 108 and 109 on the mezzanine floor will be occupied by the Robert Bosch Magneto Company, Inc., of New York, where they will show a complete line of Robert Bosch magnetics, spark plugs, generators, starting motors, magneto generators, horns, hydrometers, and other automotive electrical equipment. It is expected that the visitors to the show will find this display one of the most interesting and comprehensive in its line.

Regal Engines Shown

The display which is made by the Regal Gasoline Engine Company of Coldwater, Mich., will include a specimen engine of practically their entire range of production. Included among these will be found a new model of three cylinder and 27 h.p., with a 6½-inch bore and 7-inch stroke. Other units will be a 20-h.p. four-cylinder machine, and also a 14 h.p. two-cylinder machine. Another interesting two-cylinder model will be their 8 h.p. NA engine, and also two single cylinder machines, one of 7 h.p., and the other their baby of only 2 h.p. All the engines exhibited will be fitted with reverse gears and complete equipment.

NOCK BOATS



The Name a Guarantee

FREDERIC S. NOCK, Inc.

Naval Architects and Yacht Builders

East Greenwich

Rhode Island

The above cut shown is that of a 21-foot "De Luxe" yacht tender with Sedan cab built of Mexican mahogany throughout, powered with a 16 H.P. Kermath motor showing a speed of 14 miles. The boat is completely equipped as a thoroughly modern launch, brass trimmed and copper fastened throughout, with all helmsman's controls from the steering wheel. The usual boatsman's cockpit is shown aft. Light construction has been secured, and a gross weight of 1,800 lbs. hanging in the davits is considered unusual for a boat of this description.

250 TON MARINE RAILWAY, UNEQUALLED FACILITIES FOR HAULING, STORAGE AND REPAIRS



SEA DOG 25-Mile Express

Price with single cockpit, \$2200; with double cockpit, \$2260
F. O. B. Medford

Powered with Kermath or Wisconsin Motors
Circular and Specifications on Request. Send for Catalog of Boat
and Power Dories

15-ft. Catboat, Yacht Tenders and Outboard Motor Boats
TOPPAN BOAT & ENGINE CO., 125 Riverside Ave., MEDFORD, MASS

Star Class Headquarters

An unusual exhibit will be that of the New England Boat Works, which are showing in their Block B-4 a standard Star class boat which is entirely planked with mahogany. This is an unusually fine job, and will attract the attention of all Star boat owners. The Star Class Association has been invited to make its headquarters with the New England Boat Works, and the many members of the association will be on hand to answer questions regarding this class, for the benefit of Show visitors.

Paragon Reverse Gears

Up on the mezzanine floor will be found the exhibit of the Paragon Gear Works, of Taunton, Mass., the makers of the reverse gears which bear that name. Several typical units are shown, and the show visitors will find that many of the engines on the main floor are also equipped with these popular gears. The new Gray Marine Engine, as well as the Red Wing engines, are supplied as a standard equipment with these gears, and the engineers of these companies have assured themselves after extensive tests, that these gears are able to transmit the full power of their engines without breaking down.

A Fine Varnish Display

Up on the Mezzanine Floor the display of Valspar at the exhibit of Valentine & Company will, as usual, occupy a prominent place. This display shows the wonderful results which can be achieved when a high grade material such as Valspar is properly applied. Panels of exquisite woods are polished and varnished to perfection. In addition, the little submarine boat test will be in full operation. This test consists of immersing a little model boat, which has been previously painted with alternate stripes of Valspar and other varnishes, into a tank of water, where it is continuously wet. The durability of Valspar soon shows its superiority. In addition, the hot water test for the dining-room table finished with Valspar is also demonstrated, and this latter test proves to be of particular interest to the ladies.

Cape Cod Company Expanding

Word has reached us that the Cape Cod Shipbuilding Corporation has appointed Miss Alice O'Neil as the Boston Representative of the Company with offices in the Winthrop Building at No. 7 Water Street. Miss O'Neil is well known to the motor boat trade and numbers among her customers and friends many well known motor and sail boat owners. The Cape Cod Company is fortunate in acquiring such an enthusiastic saleswoman, and Miss O'Neil is similarly fortunate in becoming associated with a concern with such wonderful facilities for building any type of pleasure boat in large quantities. Standardization is the keynote of the success of the Cape Cod Company since their recent efforts have all been on a production basis. Enlargements to the plant are already under way, so that their production for the coming season can be expanded to meet the demand. Ample storage space will permit boats to be built throughout the winter and held in readiness for early spring delivery. A new member to the line will be a 14-foot outboard motor boat with ample free board and a wide stern. It will be especially reinforced to take care of the propulsion by means of the outboard engine. It is expected the boat will carry six persons and be capable of at least nine miles per hour with any of the standard engines.

SAVE

60%

**POWER AND
FUEL
BY OUR PATENT
SHIP
HULL SHAPE**

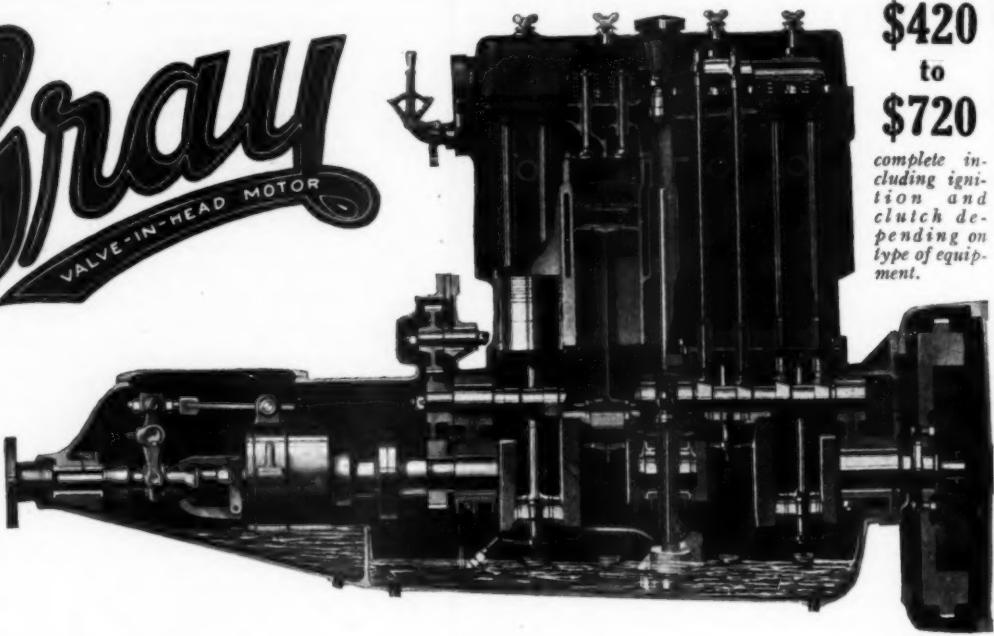
Place Orders Now

A. F. HAMACEK MARINE CORPORATION
4645 BROADWAY - CHICAGO, ILL.

Gray
VALVE-IN-HEAD MOTOR

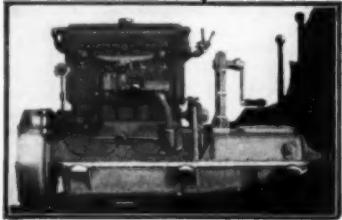
20 to
30 H. P.

Valve-in-
Head Motor
Model "V"



**\$420
to
\$720**

complete including ignition and clutch depending on type of equipment.



Into this motor has been designed and built all the quality, and up-to-date engineering that it is possible to put into a Marine Motor regardless of price.

Model "V," 20-30 H. P. Built in two types for 1924: Models "V" and "VB," complete, ready to run, \$420.00 to \$720.00, depending on type of equipment. However, the \$420.00 motor itself is a complete motor just as good and just as powerful in every way as the more expensive plant.

12 to 18 H.P. MODEL "Z" \$225.00 to \$395.00 COMPLETE

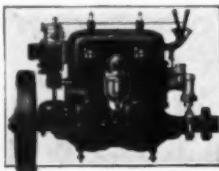
4-cylinder, 4-cycle and complete,
ready to run at above prices

A quantity production motor—Guaranteed with a guarantee that insures your summer's pleasure or daily business. We have tried to give more good honest high grade motor for less money than has ever before been offered.—Some new ideas in Marine Engines, designed by *practical motor boat men* and built by an organization of engine manufacturers second to none in the world, and at a price below any other motor of its class.



Model "Z" 12-18 H.P.

41 1/2" overall; aluminum wherever possible. Lightest motor in its class; \$395; price includes starter, generator, battery.



Model "U" 2 cycle, made in 3-4 H.P. and 6-8 H.P. Get new 2 cycle catalogue.

Ask for list of January bargains just out.
A real clean-up sale—all good values.

GRAY MARINE MOTOR CO.

6910 Lafayette Ave., East

DETROIT

MICH., U. S. A.

60,000

users all over the world will tell you how good Gray Motors are. They have been good since 1906.

J.E.CALDWELL & CO.

Jewelry Silver Watches Stationery

Yacht Prizes

in precious metals
from original designs

Silver Services
for Yachts

PHILADELPHIA

MARINE HARDWARE

at

Money Saving Prices

Class 1 Outfit \$4.50

Class 2 Outfit \$7.00

Life Preserver Pillows \$1.00

Complete Catalog with money
saving prices free upon request

ATLANTIC SUPPLY CO., Atlantic Highlands, N. J.

Rebuilt Guaranteed Standard Engines

10-12 H.P. 2 cyl. 4 cyl. complete up to and including coupling	\$350.00
24-27 H.P. 3 cyl. 4 cyl. complete up to and including coupling	750.00
32-37 H.P. 4 cyl. 4 cyl. complete up to and including coupling	1000.00
50-60 H.P. 4 cyl. 4 cyl. (valve in head) complete up to and including coupling	1400.00
125-150 H.P. 6 cyl. 4 cyl. complete up to and including coupling, as is	900.00

BRUNS, KIMBALL & CO.

153-155-157-159 West 15th Street, New York City

See pages 112, 262, 264.

Briggs—and the House He Made Out of a Boat

(Continued from page 35)

to the living room and then outside. Rosey wanted to take some exterior photographs, but it was hard to decide from what vantage point to take the picture, so attractive is the house from all viewpoints. The picture shown on the first page of this story is perhaps the best. But it does not show the weathervane—a ship model with a mizzen set that catches the winds while the ship obeys and heads north or south, east or west. Nor does this photograph show the ship's knees, over forty of them, that are tucked away under the eaves of the house; nor does it show the heavy timbers used in the construction. The photograph of the entrance door shows these old timbers about as well, perhaps, as any photograph could.

We went back to the study where we asked Briggs if we might take a photograph of him. And as Rosey adjusted his camera, as Briggs waited for that "Still, now just a minute," I thought of Briggs and his work . . . and what a wonderful work it is—bringing to thousands a bit of the laughter, a bit of the sunshine of life. This old world, as it rolls along, is inclined to be a bit stern, a bit serious. We, its children, are deeply concerned with the business of earning our daily bread. Done with a day's toil, we give thought to the little, or the much, we have accomplished. We are prone to live over again the day, not once, but many times, to point out to ourselves, perhaps, how this or that might have been done differently, and better, or perhaps should not have been done at all. Or, content to leave the day that has gone, we give thought to the morrow and wonder what it will bring forth. And this living in the yesterday, and this anticipation of the morrow, tends to sober us, to cause no little of worry and anxiety. The forehead begins to wrinkle . . . life is indeed a serious thing . . . and then along comes one who tosses in a bit of laughter, who brings with him a bit of golden sunshine, and we forget and laugh . . . and go on again, strengthened and refreshed because of the laugh! . . . the camera clicked and Briggs got up from his table.

"Well, what now?" he asked.

Rosey was through. I had seen the house made from a boat. There was just one more thing—

"We have some splendid photographs," I said to Briggs, "but it would be great if we could have a cartoon to illustrate this story; do you suppose you can find time to do it for us?"

"Surely," replied Briggs. "I'll do it for you just as soon as I get caught up with my regular work—I'm a bit behind right now."

We discussed the idea and Briggs made a memorandum. I wanted to get a line on when we could expect that drawing.

"How far do you usually work in advance?" I asked.

"Always three weeks ahead," was the instant reply. "That is, I try to! Just at present I'm only one week ahead, and for five years I've been trying to catch up. But aside from that, I'm always three weeks in advance."

We'll run that cartoon—when Briggs catches up!

The Petrel's Nest

(Continued from page 38)

weak with hunger and weariness. She had been too excited to do anything as reasonable as to go first to the hotel.

"Thank you—I'll be starting up there."

She wished she had the bravado to explain to the young woman that she'd come all this way with the hope of keeping house for a month in her old home—to explain how she longed to be there—what ages she had waited. It would be heaven-sweet to sleep under that dilapidated reddish roof and hear the sea pounding on the beach and the seagulls screaming and the wind sweeping about the Petrel's Nest!

But instead she kissed the child good-bye and with a fond, backward glance at the shabby, queer old house, turned and walked up the path.

Straightening her bonnet which Cappy in his enthusiastic embrace had set awry, she nearly collided with someone who was turning in the path.

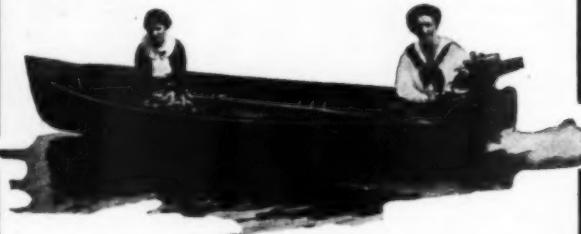
Looking up she saw a tall, straight, grave-faced man in the khaki service uniform of a Coast Guard. His face wore that ruddy, reddish coat of tan that comes only with many seasons spent in wind and sun. There was something familiar about the stern set of his jaw and those serious brown eyes. He seemed in a great hurry to get to the house and from the quickening of his step and the pleasure in his face Mother Baily was sure the Petrel's Nest was his home.

But with an apologetic "Excuse me," and still wondering, she would have gone on had he not taken off his cap and exclaimed—

"Mother Baily—if you aren't a sight for sore eyes!"

(Continued on page 254)

Outboard Motor Boats



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The Petrel's Nest

(Continued from page 253)

This time, when she looked him quite squarely in the eyes, a delighted recognition swept over her.

"Cappy—Cappy Crammer! I might have known that baby was yours!"

He had covered her gnarled, high-veined hands with his great bronze ones and kissed her as enthusiastically and as disastrously to her bonnet as had the younger Cappy.

"They were going to tear the Petrel's Nest down for lumber so I bought it and moved it to a safe place," he explained in his deep, quiet voice.

She felt bound to thank him—as though he had saved the Petrel's Nest expressly for her!

"You look just the same as you did when you used to make cookies for the whole neighborhood," he declared.

Mother Baily could scarcely say the same for him, for twenty years added on to a youth of twenty are undeniable. She remembered Cappy as a shy, silent fellow who liked to be alone. His playmates had named him "Crabbed Cappy Crammer," misjudging his reserve, as boys are apt to do, for ill humor. But she had always liked the boy—especially since the day he'd brought a seagull with a broken wing for her to nurse.

"Come in and meet my mate," he was saying.

His mate was staring at them from the porch. Before Mother Baily could speak he was piloting her toward this overdressed, discontented young woman whom of all people in the world she would least have guessed to be Cappy Crammer's wife, if indeed she could ever have imagined Cappy Crammer having a wife—big, silent, shy Cappy who had always been afraid of girls!

"We've company for dinner," he announced, kissing her and tossing his son up in his strong arms.

Introductions and explanations passed. The young woman led them into the house, insisting quite politely, that her husband's old friend stay with them while she was in Barnegat.

Mother Baily's heart turned over in her bosom as they crossed the threshold. A myriad memories and visions rushed to meet her. Little Cappy was tugging at her skirts, his mother was apologizing for untidiness, but Mother Baily heard none of it. Here was she—once more inside the Petrel's Nest. What else in all the world could matter?

She was sitting in a chair looking gratefully at the walls which were still varnished like the deck of a ship and hung with fish-nets and polished shells when her host offered her a glass of milk.

"You'd better take this—May didn't expect me home to dinner so we might have to wait some time," she heard him say. Time had slipped from her, she had no notion of how long she'd sat there.

She drank the milk, still looking about the house, in fluttering excitement, her eyes swimming in tears. But she could say nothing.

Presently she observed that Cappy was washing dishes and sweeping up the kitchen. It did look incongruous to see the big man at such tasks.

"I'm rested now—let me help you."

"Oh, I can do this place up apple-pie," he answered good-naturedly. "You know we have to take turns at such work at the station."

Mother Baily had found an apron and her sleeves were rolled up.

"Cappy," she whispered hopefully, "do you suppose your wife'd care if I mixed some biscuits for dinner? Bein' in this kitchen again kinda makes me feel like . . ."

"I should say not," he interruped. "May hates housework. She's gone to the store to buy something for dinner—we'll surprise her when she gets back!"

Cappy brought out the flour and lard and other ingredients and soon Mother Baily, flour up to the elbows, was happier than she'd been for years.

"Lan's-a-mercy," she shrieked, as she kneaded the dough. "I've still got on my bonnet!"

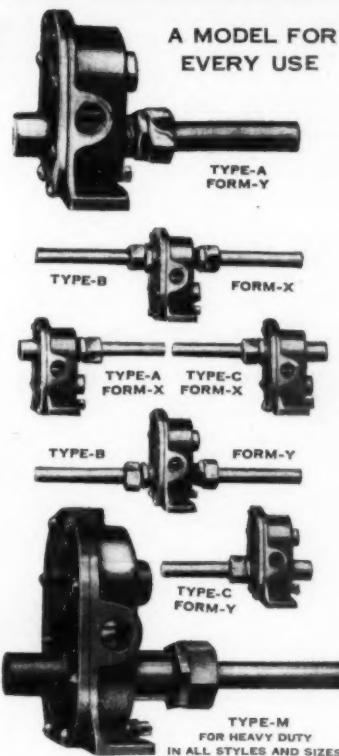
Cappy, who was setting the table, gallantly came to her aid, removing the bonnet, laying it carefully on the Victrola top in the living-room. Then the two of them, merry as griggs, went about the business of preparing dinner. But though Cappy was unusually talkative and pleasant, Mother Baily knew that he was embarrassed at his wife's housekeeping. The poor fellow made such elaborate and indulgent excuses for her. He must be very much in love with her to put up with it, his old friend surmised!

Presently young Mrs. Cappy appeared in the doorway with flushed cheeks and sparkling eyes and an armful of bundles.

"I—I didn't mean to stay so long," she apologized uneasily.

It had only seemed a minute to Mother Baily, and as for Cappy, he was pleased to have the house in order and dinner

(Continued on page 255)



The Pump That Often Outlasts the Boat's Engine

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Made of Bronze Throughout

The Petrel's Nest

(Continued from page 254)

ready to surprise her. It was not his nature to be suspicious. But in fact more than an hour had passed.

"I—I had to dress and put the baby to bed before I went out," she added, as though pressed for an excuse.

Mother Baily, a pan of brown, crispy biscuits in her hand, looked up as the young wife put her packages on the kitchen table. Her sheer blue dress—which Mother Baily thought too low at the neck for a street frock—was dexterously cut to show the pleasant, round curves of her figure. She wore many bracelets; her earrings and beads were the shade of her dress. It was easy to see that she spent more time planning and getting her clothes than she put upon household and motherly duties.

What with Mother Baily's biscuits, her miraculously light omelette, brown, greaseless fried potatoes and plenty of milk and jelly there was no need for the canned goods Mrs. Cappy had purchased.

At dinner Cappy and Mother Baily chatted, reminisced—there was the news and happenings of twenty years of island life for Mother Baily's hungry ears. The young wife was preoccupied, a dreamy, far-off look in her eyes. When they tried to bring her into the conversation she looked at them in surprise and invariably asked them what they had said.

"I calc'late all this talk 'bout Barnevaters doesn't entertain you," Mother Baily apologized. "But you see I haven't heard tell of some of the folks Cappy tells me of for years an' years."

"Oh, I don't mind," the young woman answered, irritably. "He loves this God-forsaken hole and likes nothing better than to hobnob with people about wrecks and four-riggers and the lighthouse and heaven knows what. I think it's all a lot of foolishness myself. I've been trying ever since we married to get him to leave—but he won't budge from the island."

"You go away every winter," her husband put in.

"Yes, but what's that when I know I have to come back?"

There was a smouldering defiance in her answer that Mother Baily did not miss, but her husband, feasting upon the glory of her hair, missed its warning.

That night in her low-ceilinged room, listening to the roar of the ocean and the whispering of the wind, Mother Baily lost much of the pleasure that being here gave her, and went to sleep heavy-hearted because of a tragedy she felt was brewing.

in the Petrel's Nest.

Next morning she awoke outrageously late—nearly nine o'clock.

Dressing, she went down into the living-room. The baby's toys were strewn about the floor, magazines lay scattered on tables and chairs, in one corner was a bulging basket of clothes, evidently accumulating to be mended; cigarette ashes had been carelessly dropped here and there.

In the kitchen were evidences that Cappy had got his and young Cappy's breakfast. Looking out the window she saw the baby tied to a rope in the yard, straining and fretting to be free.

"Mercy me," Mother Baily exclaimed, opening the kitchen door. "Cappy must have left by six-thirty—that child's tired bein' out there alone."

When he saw her he ran eagerly toward her—as close as his rope permitted.

"Thore leg," he cried, pointing to the bandage.

When she had kissed him, she took him in to the house where she examined the cut, and satisfied that it no longer needed a bandage, removed it, much to young Cappy's disappointment. Then putting him up on a chair, she gave him a cup of milk and some crackers.

Mrs. Cappy had not yet put in an appearance. Mother Baily looked at the slovenly rooms and her fingers itched to put them in order. But of course that would be a very indelicate thing to do in a strange woman's house. Still, it was apparent to anyone that the young wife was only too glad to shift her housekeeping responsibilities on anyone who would shoulder them. In her son's house everything had been efficiently done by servants. It had been so long since she'd had a chance at a kitchen—a glance at the rusty range was too much for her. The first thing she knew she had started breakfast on the oil stove and was shining and polishing that range until it shone like a darky's heel. Then she swept and tidied the rooms and laid the breakfast table with a clean white cloth, the baby all the while prattling and chattering, close at her feet, she merrily humming old sea songs.

She was arranging a nosegay of verbenas and morning glory for the table when she heard the click-clack of slippers

(Continued on page 256)

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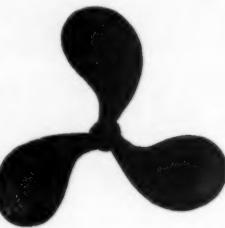
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The Petrel's Nest

(Continued from page 255)

on the stairs. In her agitation she nearly dropped the vase for it suddenly came over her what a bold, inexcusable thing she had done. Mrs. Cappy would probably order her out for a meddlesome old woman and indeed she deserved no better.

"Oh, I—I hope you aren't angry," she began nervously when the young woman appeared in the doorway. "It's terribly busy of me to do this—but you see this used to be my house and I forgot it wasn't any more—and I've waited—oh, ever so long for a chance to potter around a kitchen—this kitchen—and I thought mebbe, you doin' it every day wouldn't mind—"

"Help yourself," Mrs. Cappy yawned, pulling her blue kimona about her. "I'm a terrible sleepy-head—I really should have got up early to cook your breakfast. You can potter around to your heart's content—though I don't see where the fun is!"

Mother Baily beamed. The girl was gracious and friendly. Most women would have resented her intrusion.

"I've had my breakfast," she explained. "Let me give you yours. I'll drink another cup of coffee with you."

Mother Baily decided to like her—though a blind man could see that she did not belong where Cappy had brought her nor was she going to let herself belong.

"Poor child—I don't believe she's very happy," she mused, watching the young mother as she hugged her child.

"I s'pose you miss the movies and all the gaieties," Mother Baily suggested, as they drank their coffee. "You're from the city?"

"I'll say I am," was the quick rejoinder.

"How did you meet Cappy?"

"I was visiting a girl friend. You know he's awful good looking."

This last was spoken in a resentful tone, as though all her troubles hinged upon that.

"It's too slow down here for me—Cappy's forty, you know, and satisfied with staying here the rest of his life."

Mother Baily's heart warmed to the girl. Why, she must be as miserable in Barnegat as she was in the city! Strange how folks so often put into the wrong port!

"I hate cleanin' these oil lamps," she went on petulantly. "Keeps your hands a sight."

Lighting a cigarette she put her elbows on the table and talked amiably and leisurely—as though all the housework had been done.

"If her mouth didn't droop at the corners and if she'd keep dressed all the time," Mother Baily thought, "she'd be very pretty."

When her cigarette was smoked she amazed the older woman by strolling into the sitting-room, turning on the victrola and sitting comfortably down to manicure her nails!

Mother Baily began to clear the breakfast things away.

"Oh, don't bother—they'll get done some time. Cappy may do them when he comes home tonight—if he's in a good humor."

But it was a treat to Mother Baily to have her hands once more in hot, soapy dishwater and, lively as a cricket, she tidied the kitchen until it shone like a new pin.

"My son thought I was sick but all I needed was some work and salt air," she explained, wringing out the dish cloth.

That's the way it began and that's the way it went on—Mother Baily apologetically doing the work, young Mrs. Cappy apologetically sitting by, reading, smoking and manicuring her nails to the lively tunes of the victrola. That Mother Baily should spend the month in the Petrel's Nest was insisted upon by both Mr. and Mrs. Cappy. It gradually came to be understood between the two women that Cappy should not know just how much of the housework Mother Baily took upon herself. Certainly it was no chore for the old lady to be at the homely tasks in this house where she had come as a bride and on the whole it seemed a most felicitous arrangement. For the older woman it could have gone on indefinitely, but though being rid of hated household tasks meant much to the younger woman, it far from removed deeper grievances she nursed.

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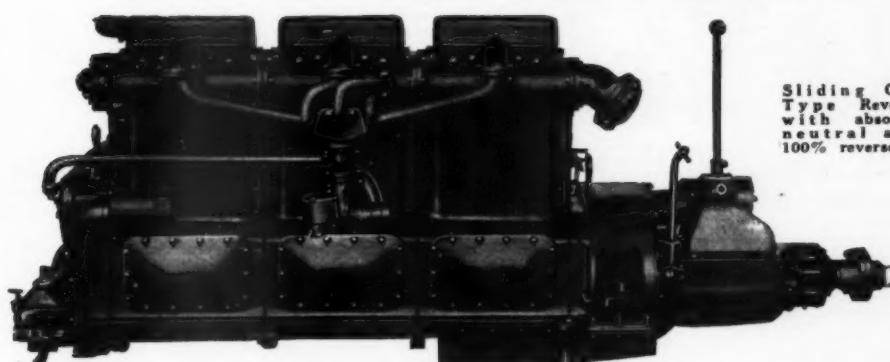
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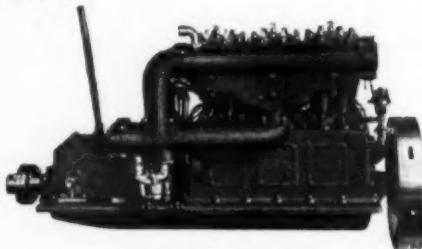
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The Boat Mechanic's Bench

(Continued from page 75)

Three cold chisels, $\frac{1}{4}$, $\frac{5}{8}$ and $\frac{3}{8}$ inches wide. Two cape chisels, $\frac{1}{4}$ and $\frac{5}{8}$ inches wide. One small round nose chisel.

One round punch, $\frac{1}{4}$ inch diameter.

One center punch.

One pair parallel jaw cutting pliers.

One pair small narrow end pliers.

One 12 inch tinners' snips.

One soldering copper about $1\frac{1}{2}$ lbs.

Bar of solder, and chunk of sal ammoniac.

Bottle of muriatic acid, cut with zinc.

Set of bearing scrapers.

Tube of Prussian Blue.

One 9 inch Starrett combination square.

Pair of inside spring calipers.

Pair of outside spring calipers about 4 or 5 inches.

One 10 inch ratchet brace.

Screwdriver bit to fit brace for large screws.

Countersink for screw heads to fit brace.

A few files are necessary, and a good layout to start with would be: One 12 inch coarse flat file, one 10 inch mill file, one 10 inch round file and a 10 inch square file. These are easily added to as needed.

Small round or flat head machine screws are very useful in fixing up things around a boat, but as they come in quite a variety of sizes and threads it would be best to buy taps and tap drills only as needed after selecting the screws. The same is true of taper pin reamers and pins.

Anyone tinkering around a boat will soon find it necessary to have a few good wood-working tools also. A couple of hand saws; crosscut and rip; a small block plane and a larger one about a foot long, an oil stone, hammer, set of bits and two or three chisels will enable him to do quite a job.

Now we have the work bench and the tools; the next thing is some convenient place to keep them. I believe for this purpose, the very best thing is a regular machinist's tool box. They are made with one large compartment or drawer for the hammers, chisels, and heavy stuff, and a number of smaller drawers where the smaller and finer tools can be separated and kept in shape so as to be located instantly when needed. A tool box for boat house use, need not be an expensive one. In fact one could be made very easily at slight expense that would answer every purpose.

The bench has a large drawer at one end. This is not for tools, but for material and articles that usually cannot be located when needed most; and the shelf underneath; well, I expect that will soon be filled with junk of some kind.

Saginaw, Mich. C. H. C.

Method for Increasing Boat Speed

(Continued from page 77)

of alignment, but when the boat is launched the hull is supported by the water in a much different manner than before it was launched. This new support for the hull is more than likely to force the shaft from its original position.

The one satisfactory method for seeing to it that the maximum possible amount of the engine power gets to the propeller is to install a set of universal joints, as shown in the accompanying figure. Automobile and truck manufacturers install similar joints where the misalignment experienced is far less than in a motor boat. One universal joint at the forward end of the shaft will compensate for much of the misalignment, but to entirely compensate for it, a pair of joints should be used. For installations where space is limited, a double centered joint will do the work.

A noted naval architect has made tests from which he has deducted that in almost every boat at least ten per cent additional power can be obtained at the propeller through the mere installation of universal joints—no other changes being made. It is not uncommon, he says, to find the power increased from 15 to 17 percent.

The figures above are for savings when the joints compensate for misalignment caused by uneven swelling of the hull members and the difference in hull support after launching. The tests show that when no universal joints are used with a shaft in a lightly constructed hull, temporary losses running as high as 30 per cent are experienced when in rough water.

When installing the universal joints, a thrust bearing should be located on the shaft so that the thrust of the propeller will not reach the joints. If this precaution is not heeded, the joints may heat up and give trouble. Properly installed, however, the joints will in almost all cases increase speed and eliminate annoying vibration from the shaft.

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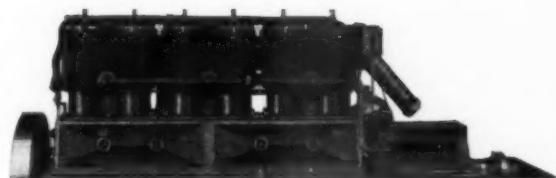
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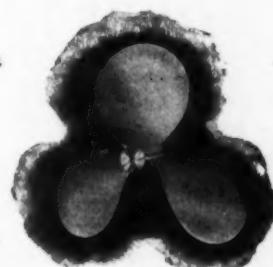
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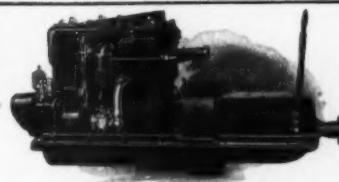
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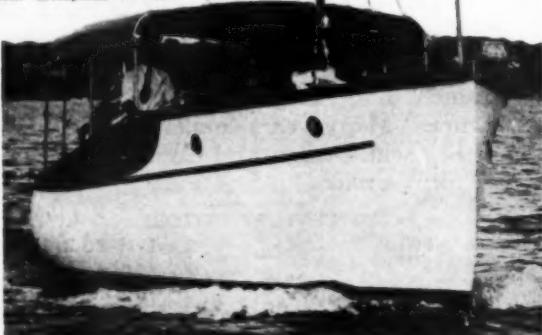
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Model C—Florida Shoal Draft Day Boat or Cruiser. Price \$5,800.

GORDON BOAT BUILDING CO.
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Brooklyn, N. Y.
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"The Success of the Season," a 100% Cruiser

Specialized DEEP SEA Cruisers

Specialized SHOAL DRAFT Cruisers

Bridge Deck Cruisers
45' 9" x 11'
x 3' 3"

Glad to see you at booth No. 33, Motor Boat Show.

White Cap II, a 24-foot Utility Craft

(Continued from page 73)

reinforced at the stem and stern with an oak breast hook forward and a substantial knee at the stern.

Engine Stringers and Bed: Stringers for the engine are to be shaped of 1 1/8-inch spruce or white pine and to be slightly let over the floors. They are to be through bolted to the floors with 5/16-inch bolts or rods, riveted over burrs. They extend between stations 4 and 11. The top stringer will form the floor line and they are to be so spaced that the motor to be installed will set in between. There will be filler pieces on the sides to prevent sway at stations 5, 6, and 7, the top of which will form the floor line. The engine bed is to be shaped of 2-inch oak or ash, properly aligned to suit the motor. It is to be let over the frames and to be through bolted to the stringers with 5/16-inch bolts, and drift bolted to the frames with 5/16-inch stock.

Clamps and Battens: The clamp is to be a single piece of 9/16 by 2 1/2-inch oak or yellow pine. It is to be let into the frames and securely screw fastened to them. It should be reinforced with a 2-inch breast hook at the stem, and a substantial knee at each side of the stern. The plank battens are to be of 1/2 by 1 1/4-inch spruce or fir on the sides, and 5/8 by 1 1/8-inch yellow pine on the bottom. There are to be in one length if possible, otherwise to have a butt block joint. They are to be let into the frames, being spiled so that the seams will meet the center of the battens.

Frame in General: The entire frames is to be neatly trimmed and faired before planking with all joints well painted as the work progresses. No fastenings are to be made permanently before painting the parts in contact with pure lead paint. All fastenings are to be of bronze or copper where exposed. Galvanized fastenings if used shall be of the dipped type, and in addition are to be painted with red lead and the holes wood plugged. All screws wherever used are to be at least three times the length of the thickness of stock they hold.

Planking: Planking will be of white cedar, white pine, or cypress, 1/2-inch thick on the sides and 9/16 on the bottom. The sheer plank is to be of mahogany. All plank to be in as long lengths as practicable, and all butts to be made on butt blocks not less than 8 inches long and to fill the space between the battens. All planking is to be fastened to the frames, keel, chine, bottom, and sides, with brass screws. Plank fastenings above the water line and to the sheer may be of galvanized screws. If desired fastenings may be copper rivets over burrs using 2-inch copper wire nails. All fastenings are to be counterbored and wood plugged. Use 1 1/4-inch No. 10 screws in keel, chine, etc., and 1 1/4-inch screws into the frames. The sides are to finish flush and to be blind caulked by making a groove in the center of each plank and inserting a strand of soft seine twine. The chine on the side and the entire bottom are to be lightly caulked with spun cotton, rolled in, but not hammered. All butts are to have at least six fastenings on each side.

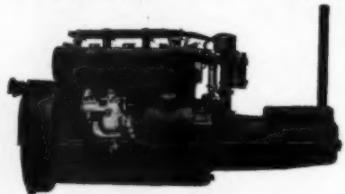
Deck Beams and Framing: The deck beams on station frames are to be 3/4 by 1 1/4-inch. The intermediates 5/8 by 1 1/4-inch. The hatch trimmer to be 3/4 by 2 1/2-inch as will be the header beams forward and aft of the cockpit opening. The cockpit trimmer is to be 5/8 by 2 1/2 inches, all of white wood. The filler block where indicated to be of oak. All beams are to be sawn to a proper radius and securely screw fastened to frames and clamp. They are to have supporting knees on each frame. There will be a bulkhead of 3/4-inch Haskelite on station No. 4, securely screw fastened to the frame and caulked. Beams are to be faired and trimmed in readiness for the planking. Hatch cover frame to have a 3/8-inch framing and 5/8 by 1 1/2-inch small beams to be screw fastened to the beams. There will be a rest strip on each header beam to support hatch covers of 5/8 by 1 1/2-inch oak, screw fastened. Partner strip to be of 5/8 by 1 1/2-inch let into the beams and screw fastened.

Decking: The center plank to be 1/2-inch. Covering boards to be 7/16 inches and the balance of the decking to be 7/16 by 2 1/2-inch strips. Covering board and the center plank are to be screw fastened. Strips can be nailed fastened with 1 1/2-inch galvanized nails into the beams and screw fastened into the partner. There should be at least two fastenings to each strip. Hatch cover is to be finished in a similar manner. All decking is to be counterbored and wood plugged. Allow a uniform seam of about 3/32 inches which should be lightly caulked with spun cotton.

Cockpit: The bulkhead is to be of 5/8 inches and in one continuous piece in alignment with the bottom of the coaming. It is to have three panels, backed with a 3/4-inch backing piece in alignment with engine stringers and fastened to same. It is to be divided with a 5/8-inch nosing piece.

(Continued on page 262)

ROBERTS MOTORS



Price of motor
complete,
including
ignition outfit

\$250

Four cylinder, 4-cycle, 18 H.P.

Price of complete power plant, including motor, ignition outfit, built-in reverse gear, polished bronze salt water propeller outfit, and starting and lighting outfit (including ammeter, starting switch, and storage battery), \$425.00.

Write for Catalog and further information.

ROBERTS MOTORS 200 Arthur St., Sandusky, Ohio

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I know that will hold'

Read about it—pages 161-164

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VENTNOR BOAT WORKS,
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**YACHT and motor-boat
builders and motor man-
ufacturers of recognized
standing use Tobin Bronze
for under-water parts.**

**They choose it for its tensile
strength, high yield point,
toughness and uniformity of
texture. They choose it for
its remarkable resistance to
corrosion.**

**Tobin Bronze is furnished
in sheets, rods, tubes and
straightened shafting. It is
the unrivalled metal for all
under-water parts.**

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ANACONDA AMERICAN BRASS LIMITED, NEW TORONTO, ONTARIO, CANADA				



Practically all their new boats the past year were painted with Marblehead Anti-Fouling Green, including the INTERNATIONAL 8 METER RACERS

ALEXANDER GRAHAM BELL used Marblehead Green for years in his Experimental Boat Department, where amazing speed results were obtained.

FOR CRUISING AND RACING YACHTS AND VESSELS The Most Powerful Preventive of Marine Growth and Destroyer Borer. A Hard Protective Finish. Lasts long time and is INVALUABLE FOR RACING Boats. Cruising Yachts save its first coat many times over in expensive repairs and repainting work.

It Has No Equal For Tropical Waters As A Protection Against Tereb.
ALL FIRST CLASS DEALERS AND YACHT YARDS
STEARNS-McKAY MFG. CO., Marblehead, Mass., U. S. A.

SAVE MONEY

BUY AN ENCLOSED STANDARD REVERSE GEAR. THEY RUN IN OIL.

Send for 1924 price list

STANDARD GEAR CO.

2819 Brooklyn Ave., Detroit, Mich.

See our ad on Pages 161 to 164

REBUILT ENGINES

Engines listed below are complete with full engine equipment including carburetor, ignition, reverse gear, etc., are REBUILT and GUARANTEED.

200 HP. Wolverine, 6 cyl., new	\$6500.00
162-215 HP. Van Blerck, 8 cyl.	1200.00
150-200 HP. Speedway, 6 cyl.	1500.00
120-160 HP. Mason Jager, 6 cyl.	1250.00
114-160 HP. Loew Victor Harbeck, 6 cyl.	1500.00
75-125 HP. Van Blerck, 6 cyl.	850.00
75-80 HP. Winton, 6 cyl.	2500.00
Twin 60-75 HP. Murray & Tregurtha, 6 cyl., each	1200.00
For the pair	2000.00
50-65 HP. Hall, 4 cyl.	1000.00
50-60 HP. Scripps, 6 cyl.	850.00
40-50 HP. Knox, 4 cyl.	900.00
40-50 HP. Anderson, 6 cyl.	800.00
40-50 HP. Twentieth Century, 6 cyl.	1000.00

32 HP. Wolverine, factory overhauled and tested, 3 cyl.	\$1400.00
Twin 25-37 HP. Craig, 4 cyl., each	600.00
For the pair	1000.00
25-35 HP. Peerless, 4 cyl.	400.00
20 HP. Ralaco, 4 cyl.	400.00
22 HP. Missouri heavy oil, 3 cyl.	1000.00
18 HP. Automatic, 3 cyl.	450.00
12 HP. Automatic, 2 cyl.	325.00
12 HP. Hettinger, 2 cyl.	300.00
10-14 HP. Frisbie, 2 cyl.	300.00
10-12 HP. Pearl, 2 cyl.	150.00
7 HP. Frisbie, 1 cyl.	300.00

BRUNS, KIMBALL & CO., 153-155-157-159 West 15th St., N. Y. C.

See Pages 112, 253, 264

Advertising Index will be found on page 276

White Cap II, a 24-foot Utility Craft

(Continued from page 260)

Coaming is to be $\frac{1}{2}$ inches and the seat back to be $\frac{3}{4}$ inches. An instrument board of $\frac{9}{16}$ inches placed as indicated on the plan, with two cleats on each side and covered with a $\frac{3}{8}$ -inch cowl. Flooring is to be of white pine as indicated on the plan. Foot boards of $\frac{9}{16}$ -inch made in three removable sections. Flooring forward of the seat to be removable and screw fastened. The after flooring is to have two permanent pieces, and a removable cleated section which shall rest on the stringers and be supported with a cleat on each side, which is fastened to the frame. There will be a seat forward made up with a solid $\frac{9}{16}$ -inch front and back, with $\frac{3}{4}$ -inch cleats for support. The front and back pieces, and the dividing piece shall be of mahogany. A removable cover of white pine shall rest on a cleat. The after seat shall be removable, and made of mahogany in front and pine on the top. It is to be supported with a post in the center. All decking and cockpit finish except where otherwise specified to be of mahogany. Sides of cockpit to be either lined with $\frac{5}{16}$ by 3-inch strips or to be finished open.

Fender: There will be a $1\frac{1}{4}$ -inch half round mahogany moulding forming a fender, screw fastened and wood plugged. It is to be slightly tapered towards the stem and the stern, and aligned approximately $\frac{1}{4}$ -inch below the deck.

Finish and Paint: The entire hull is to be thoroughly dressed and sanded with the bottom and chine seams lightly caulked. It is to have a coat of hot oil consisting of $\frac{1}{2}$ boiled linseed oil and $\frac{1}{2}$ turpentine, applied boiling hot. The bottom seams are to be filled in with a composition of dry lead and spar varnish, mixed to the consistency of putty. It is then to have a coat of lead paint throughout. The entire inside is to have a coat of hot oil and when this is dry to have a heavy coat of lead paint up to the sheer line. Where exposed it is to have an entire additional coat of the desired color. The outside can then have three coats of the desired color and the bottom three coats of Valspar bronze. All decking and the interior to be thoroughly dressed and cleaned up, properly filled with best filler and then have a priming coat of Valspar or equivalent. Seams are to be filled with Kuhls white seam composition, followed by two coats of Valspar or equivalent throughout. It is to be well sanded and prepared with 00 sandpaper between the coats. The flooring may be either finished natural or to have two coats of paint of a desired color. All seat tops to have three coats of varnish.

Hardware and Fitting: The steerer to be a Wohlrib adjustable type with a 17-inch wheel. It is to be mounted on either side 11 inches from the coaming through the center, and adjusted to suit. It is to have $\frac{1}{4}$ -inch bronze cable leading through 3-inch sheaves and necessary fair leads to the tiller on the rudder.

The rudder is to be a special type with a bronze post and blade. It is to be mounted on the transom with two special bronze fittings. The tiller to be of the sliding type projecting through the transom. The opening in the transom is to have a metal binder.

The strut is to be of manganese bronze of special pattern to suit the design. It is to be aligned to suit the shaft and securely bolted with $\frac{3}{8}$ -inch bronze bolts and babbitted with the best babbitt bearing metal.

The shaft log is to be of the Erico or the Hacker self aligning types. They are to be securely screw fastened and bolted to the keel on a gasket of canvas and marine glue. They are to be suited for $1\frac{1}{4}$ -inch shaft.

(Continued on page 264)

Hacker Craft

Dolphin



Greater Runabout Value

Price, with 50 H.P. motor, speed 25 miles, \$2750.00.

Price, with 125 H.P. motor, speed 35 miles, \$4250.00.

A high class proposition complete in every respect.

Boats ready for immediate delivery. Write or wire at once for special Florida proposition.

33 Foot Special

We are building three seven passenger forward cockpit boats. Can be powered to make as high as 45 miles. Two still available.

Special Runabouts, Gold Cup Sweepstakes Racers to your order.

Full particulars upon knowing requirements. Results guaranteed.

All racing boats built under personal supervision of John L. Hacker, designer of "Rainbow III."

HACKER BOAT CO.
DETROIT, MICH.

Send for catalog of Hacker design today



Quality Unexcelled

The preference for Eisemann magneto, in marine service, is constantly growing.

Through the test of usage, the positive dependability of Eisemann magneto has been proven.

No better ignition system is available at any price. It is but natural that the surpassing merit of Eisemann magneto should be recognized. High-grade materials always win favor.

Literature and list of Service Stations on request



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II Edition

EISEMANN MAGNETO CORPORATION
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BROOKLYN, N.Y.

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Comet Electric Speed Indicator for Boats



Price \$32.50
Stop guessing your speed. How far have you gone? Be sure of your position! COMET BOAT LIGHTING PLANTS—6, 12, 32 and 110 volt systems. Sizes from 30 watts to 5 K.W. Friction or belt driven with governor.
COMET D. C. AND A. C. LOW TENSION MAGNETOS—The most reliable ignition yet devised for boat service. Write for bulletins, prices and agency proposition.
COMET ELECTRIC COMPANY
1241 St. Paul St.
Indianapolis Ind.

White Cap II, a 24-foot Utility Craft

(Continued from page 262)

The cutwater may be either of a special brass built-up type or of $\frac{1}{2}$ -inch half round brass. It is to be securely screw fastened to the stem at 3-inch intervals and to extend under station No. 2.

The deck fittings will comprise the following: One special bow chock, one electric combination post light, two medium size special ventilators, two 5 and 6-inch cleats on each side as indicated, one 6-inch cleat on the after deck, one aft flag socket, regular or electric, and one bow flag socket. If water tight bulkhead is used, fit one cabin type ventilator.

The hatches are to be mounted on $\frac{1}{4}$ -inch piano hinges arranged to swing from the center. They are to have a $\frac{1}{4}$ -inch 18 gauge brass binder. All to be screw fastened with over head screws, using $\frac{3}{8}$ -inch No. 7 into the hinges and $\frac{5}{8}$ No. 7 in the binder. Covers are to be fitted with suitable lifting handles and quadrants. There will be two 5-inch chocks on the after deck as indicated.

The stern is to be bound with $\frac{1}{16}$ -inch brass $\frac{1}{2}$ inches in width, and securely screw fastened.

The gas tank will be a seamless steel tank of 14 inches diameter and 36 inches length, fitted with the necessary splash partitions and securely chocked into place. The saddle can be fastened to the keel and another extending from the frame on station 11 to the transom frame. These are to be cleated across, and the tank secured with straps which shall have an ear to form a clamp. A canvas liner in marine glue should be inserted under the strap, and clamped into place. The filling pipe is to be extended to the deck. A small fender may be fastened immediately above the water line at a point where the top fender intersects the side.

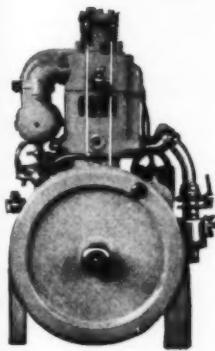
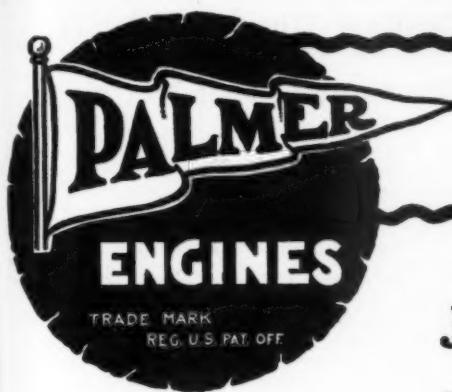
Motor Installation: The motor is to be a White-Cap four cylinder engine made by the Wisconsin Motor Manufacturing Company. It is to be properly aligned and fitted to a $\frac{1}{4}$ -inch shaft, and bolted or lagged to the foundation. The exhaust is to be through copper or steel tubing, with a 45 degree elbow on the exhaust manifold and then a nipple and union. The tubing is to be bent to extend under the floor to underneath the stern with a reverse bend to allow the tubing to go through the stern about 6 inches above the water line. Connect a water pipe through $\frac{5}{16}$ -inch pipe copper tubing from the manifold into the exhaust pipe for cooling. All water connections are to be properly made, the intake fitted with a regulation scoop with a globe valve for a seacock. A short length of pipe to extend to the motor with an elbow connected to the motor pump with suitable hose. The overflow may be made up of pipe or tubing to underneath the floor board and then with a hose to a special overflow fitting. All gasoline tubing to be of $\frac{5}{16}$ -inch seamless copper with a line from the tank to the vacuum tank in the motor compartment, and a $\frac{5}{16}$ -inch suction pipe to the manifold and vacuum tank. A $\frac{5}{16}$ -inch supply shall be lead to the carburetor with a no-leak type valve on the vacuum tank. All to be made up with SAE compression fittings. All wiring is to be properly made up and in accordance with the instructions furnished by the motor manufacturers. Controls are to be carried to the steering wheel and the starter switch conveniently mounted on the foot board. The motor installation is to be made complete in every respect in readiness for operation. A three blade propeller of 16 inches diameter and 18 inches pitch is recommended for this job and a speed of from 20 to 22 miles can be expected.

REBUILT GUARANTEED STERLING ENGINES

Twin 200 H.P., Model F.S., 8 cyl., 4 cyl., starter and generator, complete up to and including coupling, each	\$2500.00
200 H.P., Model F., 8 cyl., 4 cyl., starter and generator, complete up to and including coupling, each	2500.00
150-180 H.P., Model R., 8 cyl., 4 cyl., valve in head, complete up to and including coupling, each	1500.00
150 H.P., Model GR (Dolphin), 4 cyl., 4 cyl., valve in head, starter and generator, complete up to and including coupling, each	2500.00
120-170 H.P., Model FM, 8 cyl., starter and generator, complete up to and including coupling	2500.00
100 H.P., Model B., 8 cyl., 4 cyl., complete up to and including coupling, each	2500.00
75 H.P., Model F., 4 cyl., 4 cyl., starter and generator, complete up to and including coupling, each	1250.00
70-90 H.P., Model D (Heavy Duty), 6 cyl., 4 cyl., valve in head, starter and generator, complete up to and including coupling, each	1450.00
70 H.P., Model D (Heavy Duty), 6 cyl., 4 cyl., complete up to and including coupling, each	2500.00
45-75 H.P., Model B., 6 cyl., 4 cyl., complete up to and including coupling, each	1750.00
40 H.P., 4 cyl., Model D (Heavy Duty), complete up to and including coupling	1200.00
35-55 H.P., Model B., 6 cyl., 4 cyl., complete up to and including coupling, each	1450.00
30-45 H.P., Model B., 4 cyl., 4 cyl., complete up to and including coupling, each	800.00
17-25 H.P., Model E2, 4 cyl., 4 cyl., complete up to and including coupling, each	900.00
17-25 H.P., Model E1, 4 cyl., 4 cyl., complete up to and including coupling, each	600.00
15 H.P., Model D2 (Heavy Duty), 2 cyl., 4 cyl., complete up to and including coupling, each	500.00
15 H.P., Model D1 (Heavy Duty), 2 cyl., 4 cyl., complete up to and including coupling, each	550.00
	500.00

BRUNS, KIMBALL & CO., 153-155-157-159 West 15th St., New York City

See Pages 112, 253, 262

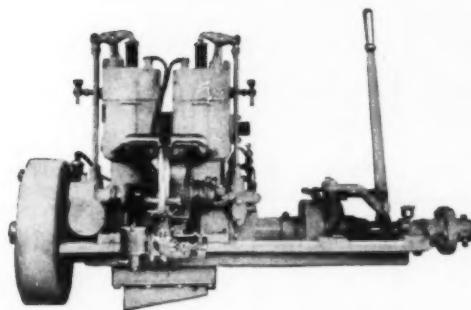


In spite of its small size this is a high-grade engine and a typical Palmer from top to base. It has individual cylinders with detachable heads. The intake gases are heated by manifold being cast integral with cylinders. The oiling system is combination force feed and splash. A counter balanced crank shaft practically eliminates vibration. All bearings

See This New Palmer YT-2 at the Motor Boat Show

JUST a year ago we announced the new Palmer model YT, a 2 H.P. single cylinder four cycle engine weighing only 95 pounds and designed especially for yacht tenders and other small boats. This little engine quickly proved so popular that we had to meet the demand for a similar engine with two cylinders.

So here it is—the YT-2. It will be publicly exhibited for the first time at the Annual Motor Boat Show. The new YT-2 weighs only 200 pounds, or 260 pounds complete with reverse gear. It is a valve-in-head engine and develops four to five horsepower.



are bronze backed, die cast and interchangeable.

Ignition, high tension magneto equipped with impulse coupling, which insures easy starting. Exhaust manifold water-jacketed. For boats that do not have fore and aft space, this motor can be purchased without reverse clutch. Weight about 200 pounds without gear, 260 with reverse gear.

Price with reverse gear	\$240.00
Price without reverse gear	200.00

As usual Palmer Bros. will have the biggest engine exhibit at the Show. This will be at Space C on the right hand side, the same location we have occupied for 10 years. There will be twenty motors on exhibition at our booth; if you want to select an engine you will never find a better opportunity to compare the different types. Of course, we will be glad to help you with all the practical information you need.

If you can't get to the Show, write us for catalog

PALMER BROS., ENGINES, Inc., Cos Cob, Conn., U.S.A.

Branches and Distributors:

New York, 128 Lexington Ave., bet. 28th and 29th Sts.
Baltimore, 306 E. Lombard St.
Philadelphia, 9 N. 6th St.
Portland, Maine, Portland Pier.

Boston, Mass., Rapp-Huckins Co., 59 Haverhill St.
Norfolk, Va., Gas Engine & Boat Corp.
Jacksonville, Fla., 122 So. Ocean Street.
Vancouver, B. C., V. M. Dafoe.

Wring out Your Anchoring Troubles

Ensure yourself absolute safety, comfort and cleanliness on your fishing and pleasure boating trips.

Install Globe Anchoring Equipment

Adaptable for all ordinary fishing, pleasure and outboard motor boats.



Model No. 3 Portable Equipment, clamps on square stern or over side of boat. A Popular model.



Spring type rope Snubber, unit of Globe Anchoring Equipment



Model No. 2 Standard Demountable for painted grow, has separate mounting base plate and locking eye

You'll like its many pleasing features. From a seated position the wringing of the anchor rope is automatically performed when anchor is raised, thus leaving the anchor rope clean and dry. A spring type rope snubber is easily attached to operating anchor. Globe Anchoring Anchor (used as shown) is particularly designed to assure positive anchoring and will clear a straight prow of any boat. Complete Equipment consists of Automatic Wringing, Combination Anchor, Portable Rope Snubber and fifty feet of hard braided anchor rope.

Either equipment can be quickly disassembled for safe keeping.

Either Equipment aluminum finish for fresh water

\$5

With your order enclose size of Equipment wanted plus F.P. or if desired will ship by express. Shipping weight of either style 15 pounds

Same Equipment hot galvanized, for salt water \$6.50

Anchor at Prow and Stern and Your Boat Won't Turn. Dealers, Jobbers and Boat Manufacturers, you should stock this profitable exclusive line your customers are asking for it.

Globe Pattern & Mfg. Works, Jackson, Mich.

All Globe Anchoring Equipment covered by exclusive and original Patents

Keep Your Clothes Clean!

How? Why just get a
STANDARD Reverse
Gear
with Multi-Cone Clutch

All enclosed—can't throw oil
and seldom needs adjustment

The whole story is on pages 161-162

STANDARD GEAR CO.

2819 Brooklyn Ave.
Detroit Mich.



ZUND

Radio Sets

DeForest D-10 Portable \$215
DeForest D-7-A Portable \$155

Complete including loop aerial, tubes, batteries and loud speaker, all ready for use. Also the famous Hazeltine Neutro-dyne sets and parts. We have a complete stock of reliable radio supplies at the lowest prices for first class merchandise.

Everything for Your Boat

R. W. ZUND CO., Inc.
47 Whitehall St. New York
One block from South Ferry
Phone: Bowling Green 8157



BOAT SUPPLIES

Advertising Index will be found on page 276

Forecasting the New Year

(Continued from page 54)

Work Boats and Motor Trucks

By Eugene A. Riote

President, Standard Motor Construction Company

In a visualization of the coming year, there are but two factors upon which to base any opinion. The production curve of the past year and one's own ability to read or misread the probable attitude of a buying public. The first of these is easily obtained, and is a fairly sure, but by no means certain, indication of what is to happen in the next twelve months. The second must depend solely upon the degree of profitable experience behind the observer.

Observation of the production of marine engines during the past year shows a decided advance in the popularity of small boats from 25 to 60 feet in length, consisting chiefly of the useful runabout and the more commodious cruiser type. The explanation of this is quite simple. Runabouts and cruisers are almost invariably the selection of men just entering upon their first purchase because they are most nearly like the automobile and may be handled by a good motor car driver with very little additional experience. The congested condition of highways the country over is at last driving the motorist to the sea, and this past season he has made himself felt as never before.

The greater factor of safety possible in the modern runabout or cruiser has emboldened the timid man to try his luck. Better designed hulls have made the small boat practically immune from ordinary weather hazards, and perfected power plants have made possible the same certainty of operation enjoyed with the motor car.

Another factor in the popularity of small engines has been the reconditioning of old but worthy hulls through the installation of a modern power plant and full equipment. Such a plan is far cheaper than building outright and far quicker.

A greater proportion of yachtsmen have ceased experimenting with freak hulls and extreme features of engine design. They are more interested now in the degree of usable service a boat is able to render, more concerned with obtaining a high average cruising speed than occasional unsustained spurts. The marine engine of today is a highly specialized product, as different from its automobile cousin as is the aeroplane engine.

Machinery, along with all else, is bound to follow the laws of evolution in order to survive. Any machine having been built over a long enough period of time must have perfected itself. So with the automobile, so with the marine engine. The demand today is for a fully developed and tried engine which will require a minimum of attendance and adjustment. The freak engine and exotic hull have had their day and served their purpose in proving correct or faulty design. Now the cry has changed for boats which need not be laid up at frequent intervals for overhauling. Such work, when necessary, can be confined to the inactive Winter months at inconvenience to no one. Interest is shown in boats which can offer the highest all-day cruising speed, the greatest economy in operation and the smoothest vibrationless flexibility of engine.

Strange though it seems at first sight, the most consistent buyer of good staunch craft is the operator of so-called work-boats. He can afford to buy only the best, for to him a few days laying up for repairs may well mean far more actual money lost than was originally saved in the purchase of an inferior product. Work-boats are in commission every possible day the year round. In the North this means every day, and in the South a season of about nine months. Reliability is the chief cry of the work-boat man, and he must get it in order to show any profit. Installment plan purchases allow a good engine to help support itself and the savings secured through reliable operation in a work-boat soon pay for the greater initial expense of the best engine obtainable. The power plant must be one which can be kept in service steadily with such attendance and repairs as are necessary sandwiched in during short periods of idleness which do not interfere with work.

The work-boat market reflects even more than the demand for pleasure boats the reaction from overcrowded land routes. Large companies have added a fleet of small lighters to their already overtaxed motor truck fleet with great success. Even though their use must necessarily be confined to waterways, they are finding an indispensable place in the transportation system of the nation.

All things considered, the coming season promises well for the engine and boat builders dealing in small and medium-sized craft which, always popular, bid fair to rival the motor car and truck in the very near future. The larger engines and boats will follow along in their slower, more ponderous manner, with the large houseboat and auxiliary schooner well in the lead. It should be a splendid year.

(Continued on page 268)

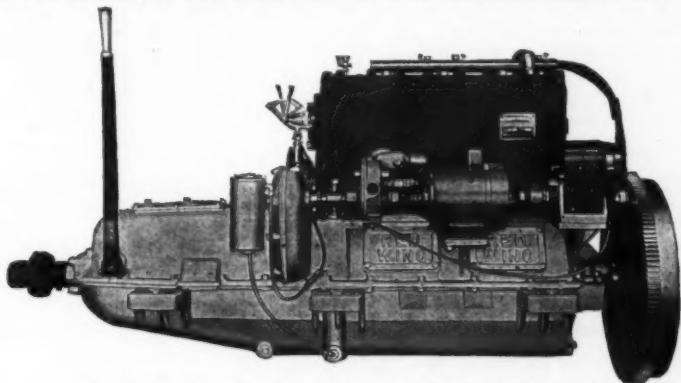


"Adventurer" a 60 x 13 foot Twin Screw Yacht, owned by Captain Henderson of the Adventurer's Club, Chicago, equipped with two Model F 28-36 H. P. 4 cylinder medium heavy duty motors.

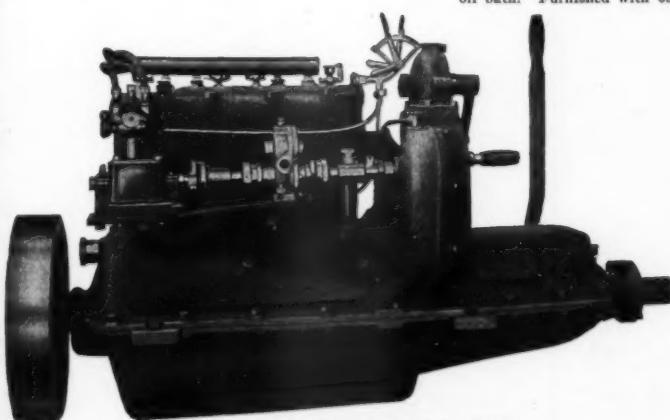
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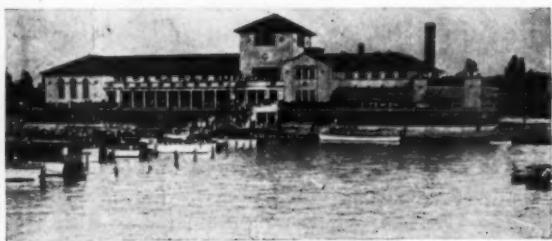
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Rates on Application

THE
MAIN  **SHEET**

W. D. Edenburn, Editor

412 MORGAN BUILDING
DETROIT

Boatmen Have Much to Be Thankful For

By C. J. Pope

Sales Manager, Universal Motor Company

LIKE the development of the automobile engine, the improvements and refinements of marine motors have been largely dictated by the wishes of the users and their desire for greater ease of operation and comfort.

More speed, smoother operation, easier and more positive control. These are the outstanding features of the up-to-date marine motor for the pleasure boat. The elimination of useless weight and an improved appearance are also called for by the motor boat enthusiast of the present day, whether his boat is a smart racer or runabout, or whether it is used for fishing and does not require a motor that will give it any great amount of speed. To meet the demand (which was anticipated and fostered by a number of the most advanced engine designers) the manufacturers found it necessary to develop their product both in design and construction, and to add refinements wherever there was any crudeness that could be eliminated.

More cylinders and better balanced moving parts give smoother operation and freedom from vibration. Greater care in machining and finish gave more power and brought out better looking engines. Compactness and beauty of design were naturally kept in mind, and the motor boat fan can now add to an engine that is dependable, and that is an ornament and adds to the appearance of his outfit.

As always, where there is a market there will also be a supply, and the manufacturers have already incorporated improvements and refinements that meet the wishes of the motor boat fan.

The engine of 1924 will show the elimination of useless weight. It will be as light as is consistent with good engineering practice. The general trend is towards more speed. The older boatmen who are no longer in the racing game are not satisfied even in their small pleasure launches with less than twelve to twenty miles per hour, while the young boating enthusiast, with some aspirations for the racing game, does not feel that he has a suitable craft unless he is able to obtain between thirty and fifty miles per hour.

In preparing for the future, the manufacturer will keep the above requirements in mind. The best engineering skill is now devoting its talents to the production of motors that will present a more pleasing and better balanced appearance, that will be practically as dependable as the steam engine, and that will be economical in fuel consumption.

The manufacturers of accessories have kept pace with the builders of engines. Carburetors that help to save fuel and ignition systems that are positive in their operation and that do not easily get out of order have been brought out. Electric starters are supplied for nearly all engines of over eight or ten horsepower. The 1924 engine, therefore, leaves little to be desired. It is clean, easy to operate, pleasing to the eye, smooth and quiet running, fairly light, economical of fuel and above all dependable.

In looking forward, a backward glance sometimes illustrates the improvements that have been made and are still to be made, to better advantage. The writer recalls the first marine engine he owned, a rather heavy, two cylinder affair with a make and break spark arrangement. Although the engine was the latest improved type, a motor boat trip was a matter of considerable uncertainty.

On one outing made by river to a neighboring city, a distance of about sixteen miles, about half of the time was consumed in repairs and adjustments on the engine. Before undertaking the homeward way, it was decided to have some mechanic who understood gasoline engines make any necessary repairs. Several inquiries resulted in a decision to go to a small machine shop whose proprietor was supposed to be an expert on gasoline engines. He was greatly interested in our power plant, and at once proceeded to take it apart and clean and examine its various parts. After several hours of work, the engine apparently was again properly assembled but even the most violent exertions failed to get even a single puff. The expert then admitted that while he understood gas engines he had never seen one of this kind. After several hours of fruitless endeavor, it was decided to leave the boat and wire for an expert from the factory. When the factory service man arrived, it was at once discovered that the spark was improperly timed, (our home expert's work) and that the original trouble had been due to faulty insulation of one of the contact points.

Looking either forward or backward, we feel that the present motor boat fan really has considerable for which to be thankful.

(Continued on page 270)

YACHT owners recognize in the reliability of the Tebo Basin Plant of Todd Shipyards Corporation their best assurance that their vessels will be given the care they merit. Special facilities are offered for building, refitting, repair and storage.

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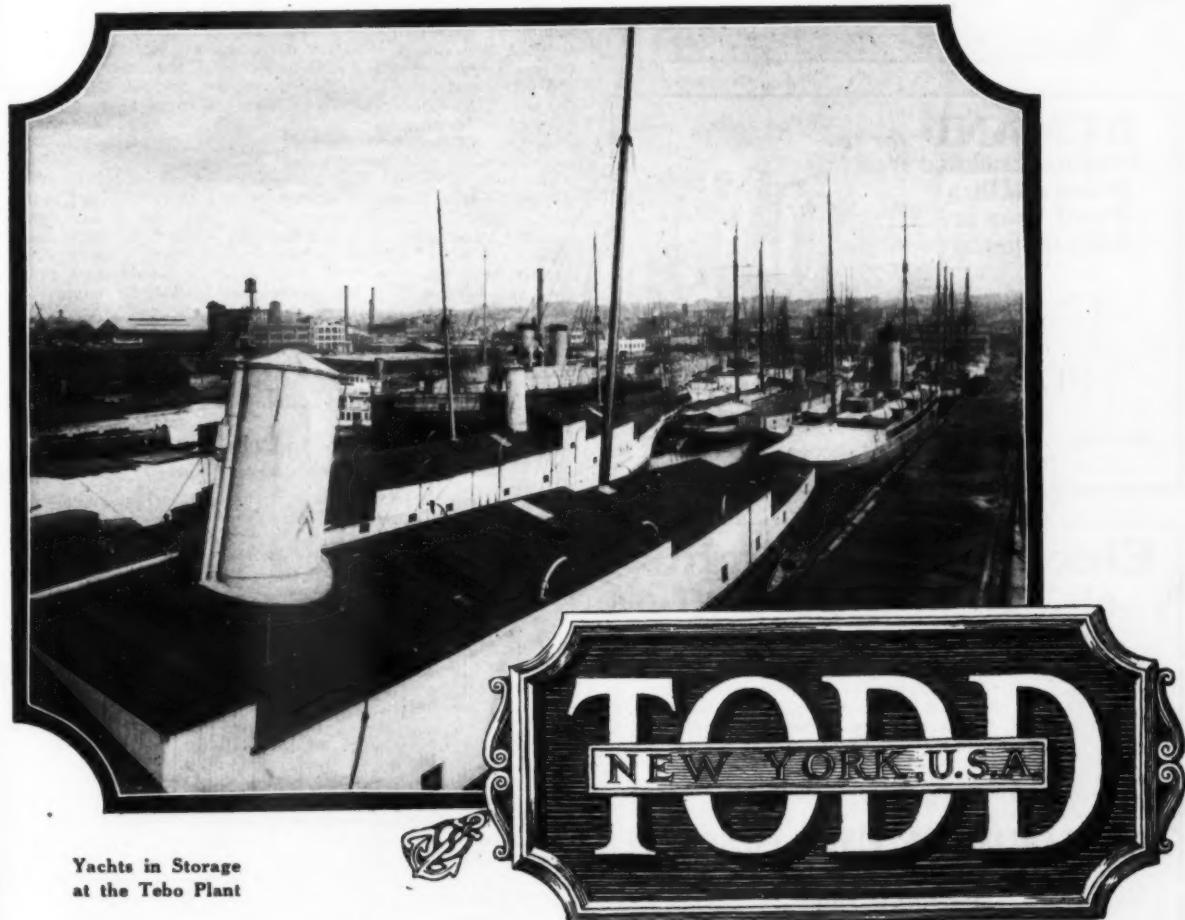
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Pages 161 to 164

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Science and Fine Metals Build Engines

By L. S. Scott

THE Hall Scott Motor Car Company is looking forward to 1924 as the greatest year in the history of motor boating.

As a company designing and manufacturing internal combustion engines especially for marine use, we have been extremely busy in our experimental laboratory testing out every possible feature that will improve our engines for the coming season. New equipments being offered our customers for 1924 will be smoother running, quieter in operation and more economical in every sense of the word.

We believe there are two distinct classes of pleasure boats built today which most concern the marine engine manufacturer;—those demanding speed and those of medium speed.

Engines to power express cruisers and fast runabouts must first of all be of light construction. They must have the finest metals obtainable, which must be properly heat treated. Our laboratories have proven that the best steel obtainable on the market is absolutely worthless unless properly heat treated for the work for which it is to be used.

We have found further that the design of the engine must be extremely simple in order to afford production. This simplicity of design also makes it possible to construct proper jigs and fixtures so that the manufacturing process of the engine is properly undertaken. This type of equipment is called upon to turn up to 2,000 revolutions constantly, developing maximum power, be economical in fuel consumption and absolutely dependable.

Further, customers use standard grade of gasoline which necessitates careful designing of intake manifolds to obtain the proper mixture at all speeds. To burn this grade of gasoline also necessitates a properly designed water temperature regulator that can be used both in salt or fresh water without fear of its non-functioning.

The other class, that of the slower cruiser or runabout, we believe should be equipped with an engine that is extremely quiet, economical in operation and of medium weight. The equipment must throttle indefinitely without loading up or allowing dissolution of oil in the crankcase, which our Engineering Department has found to be one of the most important, and hardest features to correct, of the present day marine engine. This same equipment of course must have a proper temperature regulating valve, no oil leaks, be extremely simple in design and capable of running two to three seasons without overhaul.

The above problems have all been under careful observation, exhaustive tests being conducted by our Engineering Department headed by Col. Hall during the past year in our dynamometer laboratory. It is felt that our product for the coming season will meet with the prospective customer's approval, in that we have solved a great many of these troublesome problems and believe they will agree that Hall Scott engines in 1924 are extremely improved over those of past years, while our new type equipment is a distinct advance over anything that has so far been offered to the buying public.

Cast Off—Let's Go

By M. S. Cornell, Jr.
President, Frisbie Motor Company

A N attempt to prophesy can put one in various company—including Dowies'—so the above subject is somewhat risky, however.

There is no doubt but what 1923 was the most successful boating season since before the war, both in the size and number of important events in the field, and in general activity in the industry. The holding of the 1924 Motor Boat Show in January coincident with the New York Auto Show should start the new year right.

Another important factor is the decidedly unpleasant overcrowding of the highways, particularly on week-ends, when most of us are obliged to take our fun, and any man who once gets a real taste of the very different situation prevailing on the water feels very much as does Mr. Stevens, as shown by his article in MoToR BOATING, Graduating from the Motor Car. An auto tour nowadays means dig the dirt out of your eyes, nose, ears and hair; send your clothes to the tailor's and return to your business to rest up—which is quite a different proposition from getting out on the water, breathing the good old salt air, basking in the sunshine and returning to your business feeling as if you could lick the world.

General business should show a decided improvement during
(Continued on page 272)

HOW MANY?



This was the question that was asked by the Piston Ring Company at the Convention of the Automotive Equipment Association held at the Coliseum, Chicago, November 12th to 17th.

It referred to the number of **QUALITY** Piston Rings shipped from January 1st to November 15th, 1923, and prizes were awarded for the three nearest correct estimates.

The actual number shipped and the correct answer was

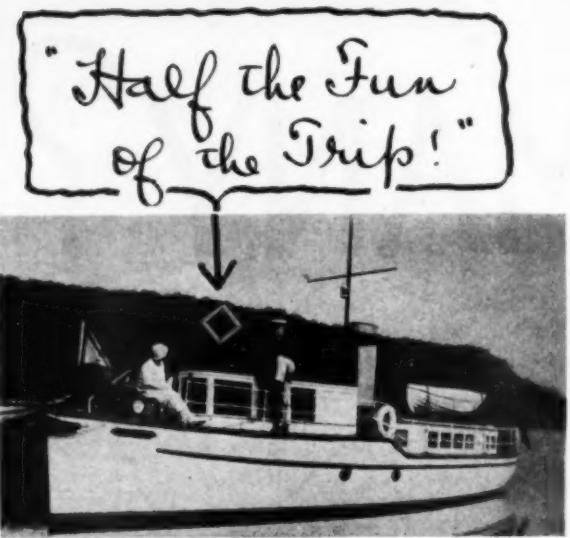
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parts.



De Forest Radiophones

Advertising Index will be found on page 276

Let's Go

(Continued from page 270)

the next few months—in fact, from the standpoint of the Republican Party it will have to, somehow. The extra steel dividend was a move in the right direction, and Mr. Mellon's tax recommendations have certainly held out new hope of releasing funds needed by the producers of the country—perhaps these can be blocked by politicians who would put what they think to be their own personal interest first; but this seems to appear more doubtful each day as the voice of popular approval of the Mellon recommendations grows louder. The bonus is still a stumbling-block, and would be a serious menace to business, counteracting some of the good effects of Mr. Mellon's plans if passed. The bonus, however, as a stumbling-block is growing smaller, the popular inclination seeming to take the form of the idea that there should be plenty of help for the disabled, but no charity to the able bodied, a large number of whom represent the idea, and most of whom would, in fact, gain more through improved business conditions and the tax exemptions they now enjoy than they could possibly hope to gain from the amount of any charity the bonus could equal.

Altogether, things for 1924 look encouraging—1923 staged a big come-back in the yachting game and considerable of a come-back in the industry. The early date of the show should give added impetus to the demand for 1924. The pleasure-loving and health-seeking public are waking up to the fact that the water offers the ideal form of recreation and health-building, and the powers that be at the Capital have shown that they are alive to the country's interest and have propounded a carefully thought-out scientific plan for the improvement of general conditions.

Everything seems to be on board—let's cast off and sail!

A New Method of Navigation

Last spring MoToR BOATING described a short cut in navigation which had been developed by G. W. Littlehales, C. E., hydrographic engineer of the Navy, and which will be of as much advantage to the yachtsman as to fast naval vessels.

A short cut is included in a volume of tables of hour angles and azimuths for altitudes of celestial bodies and for almost every degree and minute of latitude. It cuts out all mathematical computation and will reduce the time of calculating position at sea, it is claimed, from a tedious half-hour job to a trick of two or three minutes.

The first edition of several thousand of these volumes has been received from the Government Printing Office, and has been sent to agents who handle charts and other matter of the Hydrographic Office. Already almost as many requests have been received as there are volumes in the edition.

The method has already been put to practical application. The great air-liner, the U. S. S. Shenandoah, which has made several cruising trips recently, has been using this book. When she was ready to make her first trial voyage, her navigating officers were so anxious to have copies of the new book that they took a sheaf of printer's proofs bound together with tape.

Of course, it is a little too early for navigators of the big dirigible to say how successful the method will be, since the ship has made no really long trips requiring navigation by mathematics. The following comments were made recently by Commander J. H. Klein, Jr., navigating officer of the Shenandoah:

"I find reports on the method commendatory. In view of the fact, however, that sufficient use of it to be able to submit a technical report, has not been made, the navigators feel that more flights should be made and the results of the actual performances be reported.

"Even in so short a use many of its advantages are evident, such as: (a) the speed with which Sumner lines may be worked. By using the bubble sextant the corrections to the observed altitude have been eliminated, and a further increase in speed in the use of the method effected. (b) Since we are cramped for space in our navigating quarters, the conciseness of the volume, which contains all the tables required except the Nautical Almanac, is of distinct advantage. (c) Since the speed of the Shenandoah is such that even our longest flights will be only one or two days, it is possible for the Greenwich hour angle corresponding to the watch time for every few minutes can be worked out in advance. This will permit of even greater rapidity in determining the longitude and hence the fix."

The new U. S. S. Concord, which started on a circumnavigating trip to Africa about the middle of November, also took along two copies of the book made up of bound proofs. The ship proceeded by way of the Suez Canal to the east coast, down it to the Cape, north along the west coast and back to this country. The method was especially desired, since the Concord made constant soundings for depth with the new sonic depth finder.

WESTINGHOUSE BATTERIES



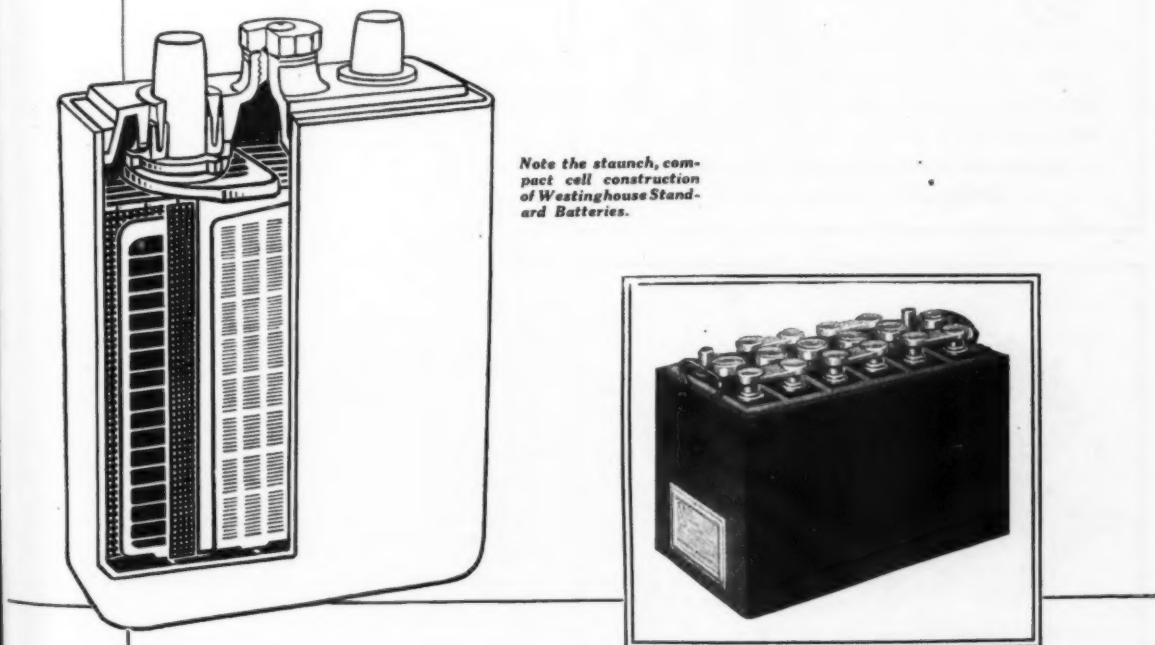
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There is a Westinghouse Battery for every size of motor-driven boat.

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For many years the recognition of the superior dependability of Schebler carburetors for marine engines has grown steadily throughout the industry—among manufacturers, dealers and owners alike.

The great predominance of Schebler carburetors on motor boats of all types and sizes shows how universal is the recognition of their superior performance.

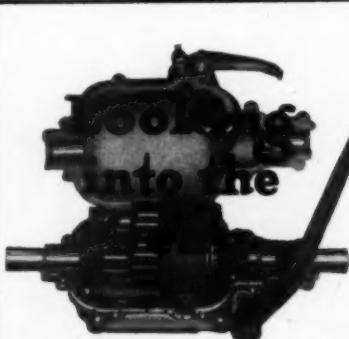
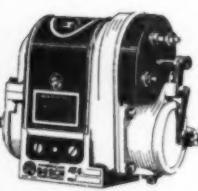
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See our ad on Pages 161 to 164

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the superi-
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Standard.
Send for Booklet

Standard Gear Co.
2819 Brooklyn Ave.
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Mich.

The United States Power Squadron extends a cordial invitation to those interested in yachting, to attend any or all of 1924, Illustrated Lectures on Coastwise Navigation and Small Boat Handling, which will be held weekly in New York City and New Rochelle, beginning in January, 1924. There will be no charges of any nature whatsoever attached to these courses.

The text book will be Practical Motor Boat Handling by Commodore C. F. Chapman.

NEW YORK CLASS

Meets in the Boxing Room of the New York Athletic Club, 59th Street and Sixth Avenue, on Tuesday evenings at 8 p.m.

Date	Subject	Chapters
Jan. 15.	Rules of the Road and Whistle Signals	I, II
Jan. 22.	Lights for All Classes of Vessels	III
Jan. 29.	Buoys, Aids to Navigation, etc.	IV, V
Feb. 5.	The Compass and Its Use	VII
Feb. 12.	Compass Errors and Corrections	VIII
Feb. 19.	The Chart and Its Uses	IX
Feb. 26.	Equipment, Nautical Instruments and Publications	VI, X
Mar. 4.	Coastwise Navigation and Piloting	XI
Mar. 11.	Small Boat Handling, Flags and Etiquette	XII, XIII, XIV
Mar. 18.	Review	

NEW ROCHELLE CLASS

Meets in the Naval Reserve Armory Monday evenings at 8 p.m.

Date	Subject	Chapters
Jan. 21.	Rules of the Road and Whistle Signals	I, II
Jan. 28.	Lights for All Classes of Vessels	III
Feb. 4.	Buoys, Aids to Navigation, etc.	IV, V
Feb. 11.	The Compass and Its Use	VII
Feb. 18.	Compass Errors and Correction	VIII
Feb. 25.	The Chart and Its Use	IX
Mar. 3.	Equipment, Nautical Instruments and Publications	VI, X
Mar. 10.	Coastwise Navigation and Piloting	XI
Mar. 17.	Small Boat Handling, Flags and Etiquette	XII, XIII, XIV
Mar. 24.	Review	

Brooks Boat Co., Inc.

The Boat Department of the Brooks Manufacturing Company of Saginaw, Michigan, originators of the pattern and knock-down system of boat building and who have successfully marketed their products in nearly every country on earth for the past twenty-five years has been reorganized and incorporated under the laws of the State of Michigan, under the name of the Brooks Boat Co., Inc.

They have acquired new and much larger quarters and are now in position to fill orders and make shipments with practically no delay. They will continue business under the same policies of the old company, continuing the same models, as well as adding several newly designed models; furnishing full size paper patterns, knock-down frames with or without planking, coamings, decking, hardware, and all accessories for the proper fitting of all boats, as the customer may select. They also furnish any of their models complete ready for the water, a complete line of models, from a 9-foot tender, canoe, row, duck, sail or outboard motor boat up to a 65-foot cruiser.

Joseph Pilon is President and C. W. Forsyth is Secretary and Treasurer of this Company.

A Correction

In November MoToR BOATING there was published an illustration of a little cruising boat, with a caption stating that it was Manchac, built by a certain boat building plant in New Orleans. The data given agreed with that which was furnished us, but we have since learned that the Huet Boat Works, Inc., were actually the builders of this boat. There were two boats built from the same set of drawings and the photograph published was that of the cruiser Rosalie, a twin to Manchac. Our information mentioned as the builder, a firm which deals in marine engines and which actually had no connection with the construction of the boats. We regret that this discrepancy should have appeared.

The Huet Boat Works, Inc., have just secured a lease for a location on the New Basin Canal in New Orleans, with a water frontage of 300 feet, where it will erect modern railways, construction sheds, work shops, and facilities for boat storage. It will continue to occupy its present quarters for the construction of small craft such as hunting and fishing boats.

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-they last longer

*—the steel case
battery defies water
and weather.*



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Hot Shots contain 4, 5 or 6 Columbia Dry Cells in series in a neat, water-tight, weather-proof metal case.

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MoToR BoatinG Advertising Index

A

Albany Boat Corp. (Watervliet, New York) 197
 American Brass Co. 261
 American Engineering Co. 244-C
 Atlantic Supply Co. 253
 Atwater Kent Mfg. Co. 270

B

Belle Isle Boat & Engine Co. 152-153
 Bessemer Gas Engine Co. 249
 Blood Bros. Machine Co. 220
 Bosch Magneto Corp., American 274
 Bosch Magneto Co., Inc., Robert 200
 Bowes, Thomas D. 121
 Brennan Motor Mfg. Co. 245
 Brooks Boat Co. 254
 Bruns, Kimball & Co., Inc. 112-113-253-262-264
 Bryant & Berry Propeller Co. 248
 Buffalo Gasoline Motor Co. 1

C

Cady Co., C. N. 195
 Caille Perfection Motor Co. 159-160
 Caldwell & Co., J. E. 253
 Carlisle & Finch Co., The 270
 Carlyle Johnson Machine Co. 210
 Carpenter & Co., Inc., Geo. B. 221
 Champion Spark Plug Co. 22
 Classified Advertisements 113-114-116
 Columbian Bronze Corp. 259
 Columbia Dry Batteries 275
 Comet Electric Co. 264
 Consolidated Shipbuilding Corp., 4th Cover
 Cox & Stevens 85 to 100-121-169

D

Defoe Boat and Motor Works 127
 Detroit Marine Aero Engine Co. 166-167
 DeForest Radio Tel. & Tel. Co. 272
 Dobson, B. T. 121
 Dodge Boat Wks., Horace E. 13 to 16
 Durkee & Co., C. D. 112

E

Eisemann Magneto Corp. 264
 Elco Works, The 2nd Cover, 213-216
 Elto Outboard Motor Co. 81 to 84
 Ensign Carburetor Co. 205
 Erickson, Hubbard, H. & Co. 235
 Evinrude Motor Co. 139 to 142

F

Fay & Bowen Engine Co. 277 to 280
 Ferdinand & Co., L. W. 209
 Fisher, Carl G. 123
 Frisbie Motor Co. 222-223
 Fyr-Fyter Co., The 21

G

Gardner & Co., Wm. 110
 General Sales Co. 241
 Gielow, Henry J., Inc. 102-103
 Gill & Sons Forge & Mach. Wks., P. H. 259
 Globe Pattern & Mfg. Wks. 266
 Goodrich Rubber Co., B. F. 244
 Gordon Boat Bldg. Co. 260
 Gray Marine Motor Co. 252

Great Lakes Boat Building Co. 24-147
 Grebe & Co., Henry C. 108
 Grebe & Co., Inc., A. H. 2

H

Hacker Boat Co., J. L. 263
 Haddock, R. M. 106-107
 Haggas, E. Lockwood 121
 Hall-Scott Motor Car Co. 148-149
 Hamacek Marine Corp., A. F. 251
 Hand, Jr., Wm. H. 121
 Hanson, Thomas S. 111-121
 Havana Races 125
 Heath Engineering Co. 244-B
 Hyde Windlass Co. 193

I

International Mfg. Co. 237 to 240
 International Ship & Marine Eng. Co. 183

J

Jennings Co., H. H. 110
 Johnson Motor Co. 246-247
 Jones, Frank Bowne 109

K

Kaufmann & Sons, Chas., Inc. 258
 Keenan, Walter Cook 121
 Kermath Mfg. Co. 155 to 158
 Kovens Bro., L. O. 211
 Kuhls, H. B. Fred 182
 Kyle Co., T. A. 257

L

Lincoln Motor Car Co. 4
 Lockwood Ash Co. 225 to 228
 Lord, F. K. 121

M

Main Sheet, The 268
 Marine Engine Co., of Phila. 117 to 120
 Masters & Co., W. L. 114
 Mathis Yacht Building Co. 244-A
 McFarland Foundry & Machine Co. 256
 Miami Chamber of Commerce 122
 Millers Motor Corp. 259
 Moreton Corp., Walter H. 115
 Mower, Chas. D. 121
 Mullins Body Corp. 229

N

National Carbon Co. 275
 Naval Architects & Yacht Brokers 121
 New Jersey Motors, Inc. 242-243
 New Jersey Paint Wks. 196
 New London Ship & Engine Co. 217
 N. Y. Yacht, Launch & Engine Co. 259
 Niagara Motors Corp. 150-151
 Nock, Frederick S. 121-251
 North East Electric Co. 23

O

Oberdorfer Brass Co., M. L. 255

P

Packard Motor Car Co. 178-179
 Palm Beach Yacht Club 124
 Palmer Bros., Engines, Inc. 265

Paragon Gear Works 17 to 20
 Peerless Marine Motor Co. 201 to 204
 Piston Ring Co., The 271
 Portable Light Co., The 259
 Prentiss-Wabers Stove Co. 230
 Purdy Boat Co. 165

R

Racine Boat Co. 194
 Rajah Auto Supply Co. 154
 Red Bank Yacht Works 254
 Red Wing Motor Co. 267
 Regal Gasoline Engine Co. 258
 Richardson Boat Co. 181
 Rigg, Linton Yacht Agency. 104-105-121
 Ritchie & Sons, E. S. 256
 Roberts Motors 260
 Rochester Boat Works 207

S

Schellenberg, B., & Sons 113
 Scripps Motor Co. 189 to 192
 Sea Sled Co., Ltd. 184 to 188
 Skaneateles Boat & Canoe Co. 254
 Smith, Edward, & Co. 206
 Snow & Petrelli Mfg. Co. 224
 Sound Machine Shop, Inc. 116
 Southern Cypress Mfrs. Assn. 180
 Spinaway Boat Motor Co. 70-171
 Splitdorf Electrical Co. 128
 Standard Gear Co. 112-161 to 164-256-258-260-262-266-270-274
 Standard Motor Cons. Co. 2nd Cover, 129-130
 Stearns-McKay Mfg. Co. 262
 Stearns Motor Mfg. Co. 131 to 138
 Sterling Engine Co. 3rd Cover, 199
 Syracuse Gear Co. 168

T

Tams & King 101
 Thompson Bros. Boat & Mfg. Co. 126
 Tiebout, W. & J. 231
 Todd Shipyards Corp. 269
 Toppan Boat & Engine Co. 251

U

Universal Motor Co. 218-219

V

Valentine & Co. 79
 Van Blerck Engine Corp., Jos. 257

W

Wellman-Seaver-Morgan Co., The 143 to 146
 Wells, John H. 121
 Westinghouse Union Battery Co. 273
 Westinghouse Electric & Mfg. Co. 172
 Wheeler Schebler Carburetor Co., The. 274
 Wilcox Crittenden Co., Inc. 168-177-198
 Willis Co., E. J. 233
 Winton Engine Works 173 to 176
 Wisconsin Motor Mfg. Co. 5 to 12
 Woolsey Paint & Color Co., C. A. 212

Z

Zundel Co., Inc., R. W. 266

V
3
3
1

J
A
N

2
2

X